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NURSES' REACTIONS TO PATIENT WEIGHT:  
EFFECTS ON CLINICAL DECISIONS

by

Heidi M. Pfeiffer

A Dissertation Submitted in  
Partial Fulfillment of the  
Requirements for the Degree of

Doctor of Philosophy  
in Psychology

at

The University of Wisconsin-Milwaukee

May 2017

## ABSTRACT

### NURSES' REACTIONS TO PATIENT WEIGHT: EFFECTS ON CLINICAL DECISIONS

by

Heidi M. Pfeiffer

The University of Wisconsin-Milwaukee, 2017  
Under the Supervision of Professor Diane M. Reddy, Ph.D.

In previous research, a variety of health care providers have expressed some degree of negative attitudes toward caring for obese patients. However, little is known about whether these negative attitudes lead to differential care. This study focused on the clinical decision-making of nurses, who are under-represented in this type of research despite their central and sustained role in patients' care experiences. In an anonymous online survey, 256 nurses responded to clinical vignettes about a hypothetical patient depicted in a photograph. The patient's appearance was altered to appear normal-weight or obese, for each of two different models per sex, utilizing a 2x2x2 experimental design. Participants indicated their clinical decisions related to walk assistance, timing of visits, pain management, and patient-centered communication. Participants also rated their attitudes toward the patient and provided relevant job and demographic information. Results revealed that although patient weight did have a significant negative influence upon nurses' attitudes, nurses still held far more positive than negative attitudes toward patients of both weights. Furthermore, patient weight did not significantly impact nurses' care decisions. Providing walk assistance to obese patients was perceived to be more physically demanding, a greater injury risk, and more likely to require

additional assistance from a second staff member compared to normal-weight patients.

However, neither the patient's weight nor the nurse's attitudes toward the patient influenced anticipated number of walk assists. Across all patients, the strongest predictor of walk assistance was the likelihood that a second staff member would be immediately available to help if needed. Findings suggest that although patients' weight may influence nurses' attitudes toward them, it is not likely to impact the quality of care they receive. Future research could examine the impact of resource availability (e.g., full staffing, specialized weight-appropriate equipment) on nurses' care for patients of all weights.

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## ACKNOWLEDGMENTS

I wish to thank all of the nurses who took the time to complete the survey. I am extremely appreciative of the nursing organizations and institutions that supported this project and participated in recruitment efforts.

Thank you very much to the nurses, physicians, and researchers who helped develop this project. You were generous in sharing your time, expertise, and previous work. Your feedback and enthusiasm were immensely helpful.

I am very grateful to have had many wonderful mentors and passionate teachers over the years. I wish to thank my advisor, Diane Reddy, and all of my dissertation committee members: Ray Fleming, Sue Lima, Pam Schaefer, and Chris Larson. Thank you also to Mikki Ray and Kim Skerven at Alverno College, my colleagues at the Clement J. Zablocki VA Medical Center, and my teachers and Teaching Assistants at UW-Milwaukee, Marquette University, Washington University in St. Louis, Pius XI High School, and St. Luke's School.

Thank you to my students at UW-Milwaukee, Alverno College, the United Community Center, and the Hope House of Milwaukee. You have made my introduction into teaching an extremely fulfilling experience.

I am thankful for JoAnne Graham and my friends across the UW-Milwaukee graduate programs. Thank you to Psychology Department students from the years ahead of me in the program, who offered so much guidance, and to my classmates who became my friends.

Thank you especially to my parents, siblings, and best friends for their constant love and support. I am very grateful to be surrounded by people with such active and curious approaches to life, kindness to others, passion and dedication toward their goals, and laughter.

## Nurses Reactions to Patient Weight: Effects on Clinical Decisions

The prevalence of obesity in the U.S. has hovered around 35% in recent years, posing a major threat to public health (Flegal, Carroll, Kit, & Ogden, 2012; Flegal, Carroll, Ogden, & Curtin, 2010; Ogden, Carroll, Kit, & Flegal, 2014). The inherent medical consequences of obesity are compounded by the finding that obesity is associated with lower likelihood of seeking routine preventive health care and screenings (Gudzune, Bennett, & Cooper, 2014; Maruthur, Bolen, & Brancati, 2009). This phenomenon may be explained in part by negative weight-related attitudes of health care providers, which have been found to worsen patient-provider communication (Gudzune, Beach, Roter, & Cooper, 2013; Puhl & Heuer, 2009) and to deter obese individuals from seeking regular medical care (Amy, Aalborg, Lyons, & Keranen, 2006; Gudzune et al., 2014; Ubink-Veltmaat, Damoiseaux, Rischen, & Groenier, 2004). Additionally, individuals who perceive weight discrimination directed against them are significantly more likely to become or to remain obese (Sutin & Terracciano, 2013; Tomiyama & Mann, 2013). Thus, a full understanding of weight-related attitudes among health care providers is essential to achieving quality care for obese individuals.

Nurses are a particularly important population to understand, because they are “frontline health care providers” highly involved in direct care for patients throughout their visits (Creel & Tillman, 2011). Nurses are uniquely situated to influence overall care quality, not only because of their elevated contact with patients and knowledge of the patient’s ongoing experience (Haider et al., 2015), but also because they make frequent decisions throughout the day related to evaluating and monitoring their patients, administering and managing medical

interventions, and communicating with patients and their families (Bucknall, 2000). Nurses have ample opportunity to impact not only a patient's care, but also his or her impressions of healthcare providers in general, with implications for future care-seeking (Creel & Tillman, 2011).

Despite their key role, nurses are underrepresented compared to physicians and medical students in weight-related attitude research. This gap is particularly problematic given that little is known about potential differences between various provider types. A study in California found that physicians assistants did not differ from nursing professionals in their responses to questions about the care of obese women (Amy et al., 2006). However, a study in the United Kingdom found that nursing students had more contact with obese individuals and held more positive attitudes toward obese individuals compared to medical, nutritionist, and dietetics students (Swift, Hanlon, El-Redy, Puhl, & Glazebrook, 2012). No other known studies compared weight-related attitudes of nurses to those of other health care providers.

Various negative attitudes toward obesity and obese individuals have been documented among the general population, health care providers in general, and nurses in particular. Previous studies utilized self-report scales, open-ended questions, interviews, case studies, or clinical vignettes to measure weight-related attitudes among nurses. These studies examined the extent of negative weight-related attitudes, differences in these attitudes based on nurse characteristics, and—much more rarely—how clinical judgments were affected by patient weight. However, important gaps in existing research remain. Specifically, key outcomes related to clinical decisions have not yet been thoroughly examined, and potential underlying mechanisms have not yet been analyzed.

## **Self-Reported Attitudes toward Obesity**

The most frequently used method to study weight-related attitudes among nurses has been questionnaires in which nurses were asked directly about their feelings and beliefs related to obese patients in general. Nurses consistently reported varying degrees of negative attitudes about obese individuals in studies of this type.

Bagley, Conklin, Isherwood, Pechiulis, and Watson (1989) developed the Attitudes Toward Obese Adult Patients Scale, which has been one of the most widely used measures of nurses' attitudes toward obesity and obese patients. Few details were provided about the results and psychometric properties of the original scale, but several subsequent studies utilized it. These studies noted varying portions of nurses who reported that caring for obese patients was physically demanding, uncomfortable, stressful, and non-preferred; that they felt impatience, repulsion, and a lack of empathy toward obese patients; and that they believed obese patients were over-indulgent, lazy, demanding, and largely at fault for their own obesity (Culbertson & Smolen, 1999; Garner & Nichol, 1998; Maroney & Golub, 1992; Poon & Tarrant, 2009).

Bagley et al.'s original scale was later adapted and expanded by Watson, Oberle, and Deutscher (2008) to create the Nurses' Attitudes Toward Obesity and Obese Patients Scale (NATOOPS). Using this new version of the scale, Garcia (2012) again concluded that negative attitudes toward obese patients were present among nurses. Garcia, Amankwah, and Hernandez (2016) found that pediatric nurses had negative attitudes about the psychological characteristics of obese patients and about the blameworthy causes of obesity, but did not hold

negative feelings toward obese patients, nor negative expectations about the provision of their care.

The Fat Phobia Scale (Bacon, Scheltema, & Robinson, 2001) has also been used to obtain direct reports from nurses as to their attitudes about obesity. Swift et al. (2012) found that a sample of pre-health students (including nursing students) reported significant levels of fat phobia, with only 1.4% of participants expressing positive or neutral attitudes toward obese individuals. Poon and Tarrant (2009) noted that nurses and nursing students in Hong Kong reported “average” levels of fat phobia based on the norms established by the scale’s original authors (Bacon et al., 2001).

Still other scales have been used only once, each in the nursing study for which it was designed. Hoppe and Ogden (1997) created a questionnaire about the perceived causes of obesity, and found that nurses in the United Kingdom attributed obesity less to biological factors such as genetics, and more to lifestyle factors, patient non-compliance, and lack of motivation to lose weight. A scale designed by Brown, Stride, Psarou, Brewins, and Thompson (2007) revealed similar findings about perceived causes of obesity among United Kingdom nurses: 69% agreed personal choices about food and activity explained obesity, 33% agreed obesity was due to lack of will-power, and only 8.2% agreed obese individuals were motivated about lifestyle change. Brown et al. did note, however, that outright negative stereotypes toward obese individuals were rarely reported. Allison, Basile, and Yunker (1991) developed the Attitudes Toward Obese Persons Scale (ATOP) and the Beliefs About Obese Persons Scale (BAOP). Gujral, Tea, and Sheridan (2011) used these two scales with a sample of nurses and noted, “Our results support other findings suggesting that nurses might have negative

associations toward obese patients” (p. 538). Gujral et al. were limited in their interpretation of mean scores, however, due to the fact that no parameters for positive, negative, or neutral attitudes were defined by the scale’s authors (Allison et al., 1991).

Although nurses’ direct reports of their own attitudes toward obese individuals have been useful in identifying the nature and scope of negative weight-related attitudes, there are significant weaknesses with this method of measurement. First, most of these scales referred exclusively to attitudes toward obese patients, without providing any point of comparison by asking about attitudes toward normal-weight patients, or patients in general. Second, within each of the scales by Allison et al. (1991) and by Bagley et al. (1989), some questions assessed participants’ personal attitudes toward obesity, whereas other questions assessed participants’ beliefs about the normative attitudes of others toward obesity. This inconsistency led to uncertainty in interpretation. Third, all of these scales simply measured nurses’ attitudes toward the general category of “obese adults,” and could not provide information about whether or not these attitudes might translate to differential treatment of obese versus normal-weight patients.

An additional weakness of these scales is highlighted by what is known about implicit weight-related attitudes. Implicit weight-related attitudes have not yet been studied among nurses, but findings among other health care professionals and the general population have often revealed “implicit anti-fat bias” was present even when minimal or no explicit negative attitudes toward obese individuals were reported (Bessenoff & Sherman, 2000; Teachman & Brownell, 2001; Teachman, Gapinski, Brownell, Rawlins, & Jeyaram, 2003; Schwartz et al., 2003). Findings like these suggest that nurses’ reactions to obese patients may be shaped in

part by factors of which they are unaware, or perhaps reluctant to report due to social undesirability. As a result, studies that rely solely on nurses self-reported attitudes when asked about obesity directly provide an incomplete explanation of nurses' reactions to obese patients.

### **Qualitative Studies**

Qualitative researchers have aimed for a more nuanced understanding of these issues, and have identified a greater degree of ambivalence among nurses regarding care delivery to obese individuals. These studies frequently revealed that nurses reported empathy and concern for their obese patients, but that they also reported frustration with these individuals and acknowledged significant difficulties associated with providing them with care. One study took a different approach, exploring the perspective of obese patients and finding they perceived a variety of negative weight-related attitudes from nurses.

In the United Kingdom, Wright (1998) utilized semi-structured interviews to explore female nurses' responses to overweight female patients. Wright noted that nurses reported sensitivity to emotional consequences that could result from patients receiving negative criticism about weight. At the same time, nurses felt that remaining overweight was a health risk. Thus, nurses felt conflicted and uneasy about whether to bring up weight with their overweight patients. Many often chose not to do so, but were not entirely satisfied with their decisions.

In several other studies, nurses expressed a desire to help patients that were obese, but also expressed frustration in response to perceptions that these patients were not motivated to help themselves. Using open-ended survey questions, Petrich (2000) found that nursing students expressed empathy and concern about the victimization of obese individuals



(especially obese women), but also felt repelled by perceived laziness and lack of self-control in obese individuals. In semi-structured interviews, practicing nurses did not report any overt negative attitudes or stereotypes, but did indicate they had little enthusiasm for working in weight management because they felt obese patients lacked motivation to change (Mercer & Tessier, 2001). In interviews by Brown et al. (2007), nurses reported being aware of obesity-related stigma and taking pains to avoid weight-based stereotypes, but some also expressed frustration that patients were non-complaint or wanted an “easy way out.”

Zuzelo and Seminara (2006) utilized Bagley et al.’s (1989) scale, but also examined nurses’ responses to an open-ended question about obese patients. It was found that nurses had positive attitudes toward obese persons, felt sympathy, were aware of obese patients’ unique care needs, and made efforts to provide quality care. However, these nurses were overwhelmed by obese patients’ special care needs related to decreased bedside mobility, decreased self-care/hygiene abilities, and increased assistance required for ambulation (i.e., walking). They expressed dread of these physically demanding, emotionally draining, and time-consuming care demands for obese patients. Nurses also reported concern for their own personal safety during transfers of obese patients, particularly in light of staffing shortages and the frequent lack of appropriately sized, specialized equipment.

Semi-structured interviews by Garcia (2012) also delved deeply into nurses’ perceptions about the increased demands associated with caring for obese patients, with similar findings. All 16 of the nurse participants reported that increased challenges of patient care tasks contributed to negative attitudes toward obese patients. Nurses felt that ambulation and movement with obese patients were exhausting, required help from additional staff, created

risk of injury, and were often conducted without much effort on the part of the patient. Nurses also noted greater difficulty and time required for procedures such as IV and Foley catheter insertion, as well as with “Activities of Daily Living” (ADLs) such as bathing, changing gowns, and changing bed sheets. The need for specialized equipment (which was not always available) to accommodate obese patients’ size was another concern. All 16 nurses reported at least one negative perceived characteristic of obese patients, together describing these patients as lazy, helpless, demanding, attention-seeking, stupid, depressed, and poor in personal hygiene.

Creel and Tillman (2011) used a different approach, interviewing 8 female, overweight, chronically ill patients about their perceptions of the weight stigma directed toward them by nurses. These patients reported that nurses’ verbal or non-verbal communications about weight were unintentionally hurtful, that nurses made negative assumptions based on the patients’ weight, that nurses seemed reluctant and impatient when providing care, and that nurses’ stigmatizing behaviors led to feelings of shame, marginalization, and anxiety.

The results of qualitative research underscore the potential complexity of nurses’ attitudes toward obese patients, and illuminate specific ways in which obese patients might place additional demands upon nurses providing care. These care demands are important to keep in mind, particularly because high workloads have been linked to occupational stress among nurses (Endacott, 2012; Happell, Dwyer, Reid-Searl, Burke, Caperchione, & Gaskin, 2013).

### **Case Studies and Clinical Vignettes**

Only two studies related to nurses have utilized simulated patient encounters to create experimental manipulations of weight and to measure clinical care outcomes. One of these was

conducted with a sample of Canadian nursing students, which did not include any licensed, practicing nurses. The other was conducted with a sample of mental health providers; some of these were psychiatric nurse practitioners (NPs), but the number of NPs within the sample was not specified, and analyses were not carried out separately for this group.

In a 2x2 experimental design, Peternelj-Taylor (1988) provided 100 Canadian student nurses with a shift-change report for an unremarkable emergency appendectomy patient, along with a black-and-white pencil sketch of the patient: either male or female, and either “normal weight” or “moderately obese.” The nursing students rated the patient’s emotional health, social attractiveness, and their feelings toward the patient using the Nurse Evaluation of Patient Scale, which was adapted from Kaplan’s (1982) measure for rehabilitation counseling students. Next, participants completed an attribution task adapted from a study about the influences of attractiveness in pediatric patients (Bordierej, Solodky, & Mikos, 1985). In this task, participants read about a hypothetical disturbance between the patient character and the nurse character, and rated their perceptions of who was most responsible along a 7-point scale. Finally, participants completed the Care Delivery Decision scale to indicate how often they would administer Demerol that had been prescribed on a p.r.n. (as needed) basis for pain relief, their preference for primary nursing versus team nursing, and their preference for 12-hour versus 8-hour shifts. Less frequent pain medication administration, a preference for team nursing, and a preference for 8-hour shifts were interpreted to indicate nurse withdrawal from the patient.

Results showed that obese patients were rated more negatively on the social attractiveness subscale of the Nurse Evaluation of Patient Scale. However, patient weight did not affect nurses’ evaluations of the patient’s emotional health, feelings toward the patient,

attributions of responsibility, or care decisions. Male patients were evaluated more negatively in terms of social attractiveness, but no other main effects of sex were noted, nor were any interaction effects between patient weight and sex.

Although Peternelj-Taylor's (1988) study was perhaps the most valuable of all previous research in terms of attempting to uncover potential influences of patient weight upon nurses' clinical decisions, it was limited in several important ways. First, although the Care Delivery Decision scale represented a very promising direction of inquiry, only three questions were included, and analyses were focused on the scale total rather than examining individual care outcomes. These items were also not assessed for validity as measures of nurse withdrawal or for reliability as a scale. Second, although Peternelj-Taylor concluded that social attractiveness acted as an intervening variable to nurse withdrawal, formal mediation analyses were not conducted. Third, the author utilized black-and-white pencil sketches to manipulate patient weight, due to a lack of realistic altered photographs given the technology available at the time. These sketches highlighted the fact that the patient being evaluated was fictional, which may have limited participants' ability to engage with the case study. Fourth, the sample consisted entirely of nursing students; nursing students' weight-related attitudes were found to differ from those of practicing nurses in the only study that compared the two (Poon & Tarrant, 2009). Finally, this pioneering study was conducted almost 30 years ago, and an update as to the current state of nurses' attitudes is warranted.

Young and Powell (1985) used a similar design in which 120 mental health practitioners were presented with a case study, along with a photograph of a female, middle-aged client that had been altered with computer software to appear "best-weight," "overweight," or "obese."

Using 6-point Likert scales, participants rated their willingness to work with the client, beliefs that therapeutic intervention would be useful and a favorable prognosis possible, and the perceived severity of 20 negative psychological symptoms.

It was found that clinicians viewing the different photographs did not differ in their willingness to work with the patient, nor in optimism about the results of treatment. However, the patient's weight did create significant differences in perceived severity of psychological symptoms. When the "obese" client was compared to the "overweight" client, the heavier of the two was rated as exhibiting significantly greater agitation, emotional behavior, impaired judgment, inadequate hygiene, inappropriate behavior, obsessive-compulsive behavior, self-injurious behavior, and stereotyped behavior. When the "obese" client was compared to the "best-weight" client, additional significant differences were found for egocentrism, hypochondriasis, intolerance for change, and suspiciousness. No significant differences were found between the "overweight" and "best-weight" clients. The largest weight-based differences were related to perceived emotional behavior and self-injurious behavior.

Young and Powell's (1985) study also had several limitations. First, mental health delivery is applicable only to a small subset of practicing nurses, and the results among these nurses were not examined separately from the rest of the mental health providers. No information was provided about clinical decisions typically encountered by the majority of practicing nurses. Second, only female clients were included, thus leaving the potential influences of patient sex unexamined. Finally, the authors noted there was some uncertainty as to how participants may have interpreted the client weights depicted in the photographs. It is possible that what the researchers intended to represent an "overweight" body type was

instead perceived by participants as an average weight body type for a middle-aged female. Unfortunately, the study did not include any check of the manipulation's effectiveness.

Due to the scarcity of research utilizing clinical encounter descriptions with nursing samples, it is perhaps useful to borrow from an experiment conducted with primary care physicians. Hebl and Xu (2001) presented 122 primary care physicians with a standard medical chart they believed to be authentic, describing a patient with migraine headaches who was depicted as either male or female, and as "normal weight," "overweight," or "obese." Participants completed a standard medical procedure form to indicate the tests they would order from a comprehensive list of options, then answered 13 questions about the patient.

Results showed that physicians rated the migraines as equally severe for all patients, but ordered more tests and indicated they would spend less time with the patient as the patient's weight increased. Heavier patients were rated as possessing significantly lower self-care, self-discipline, likelihood to follow medical advice, likelihood to benefit from counseling, and overall health. Physicians also predicted that heavier patients would be more likely to be annoying and a waste of time, and indicated that they themselves would feel less desire to help, less positivity, less patience, less enjoyment of their job, and a higher inclination to offer strict medical advice.

A major limitation to the usefulness Hebl and Xu's (2001) study for current research questions is that common clinical decisions specific to nurses were not represented. Whereas physicians assign diagnoses and write orders based on limited patient contact, nurses continuously make multiple, subtle care management decisions based on personal contact with the patient throughout his or her hospital stay. Additionally, in this study, as in those already

described, participants' care decisions and attitudes were each analyzed in isolation, with no examination of the possible relationships between them.

Experimental designs utilizing simulated clinical encounters present an extremely valuable tool that can be used to extend what is known about nurses' weight-related attitudes, through an examination of care-decision outcomes with implications for quality of care. However, no study to date has utilized an experimental design to study practicing nurses' reactions to patients of varying weights. Furthermore, in the few studies that have incorporated case studies and vignettes, measurements have been limited in terms of variety, thoroughness, and clarity.

### **Influence of Nurse Characteristics**

Many of the aforementioned studies examined not only nurses' weight-related attitudes, but also specific nurse characteristics, which might influence these attitudes. Nurse age and body weight were particularly reliable influences upon nurses' attitudes. Results were mixed regarding the influences of education level, years of nursing experience, and degree of contact with obese patients. Nurse sex did not have a significant influence. Less commonly studied factors included racial factors and nurses' workloads (significant influences), and specific nursing occupation (not a significant influence).

Older nurses were generally found to have more positive attitudes toward obese patients compared to younger nurses (Bagley et al., 1989; Culbertson & Smolen, 1999; Swift et al., 2012; Young & Powell, 1985). Brown et al. (2007) was the only study that did not find a significant association between nurse age and weight-related attitudes.

Higher nurse body weight has frequently been associated with more positive attitudes toward obese patients (Brown et al., 2007; Garcia, 2012; Gujral et al., 2011; Hoppe & Ogden, 1997; Young & Powell, 1985; Swift et al., 2012). Some studies, however, did not find a significant effect of nurse body weight upon attitudes (Garcia 2016; Poon & Tarrant, 2009; Zuzelo & Seminara, 2006).

In two studies, the influence of nurse body-satisfaction was examined rather than the influence of nurse body weight. Bagley et al. (1989) noted that nurses who were less satisfied with their own body reported more negative attitudes toward obese patients. However, Culbertson and Smolen (1999) found that nurses' self-perceptions about the need to lose 10 pounds were not related to attitudes toward obese patients.

Results have been mixed as to whether years of nursing experience is associated with weight-related attitudes. Culbertson and Smolen (1999) found that more experienced nurses held more positive attitudes toward obese patients. Poon and Tarrant (2009) found that practicing nurses held more positive attitudes than nursing students. However, other studies found that nursing experience was not significantly associated with weight-related attitudes (Brown et al., 2007; Zuzelo & Seminara, 2006).

Results related to the influence of nurse education have also been mixed. Swift et al. (2012) found that nursing students in their final year had more positive attitudes toward obese individuals compared to nursing students in their first year, and Bagley et al. (1998) found higher years of professional education were associated with more positive attitudes. Similarly, Garcia (2012) found a trend suggesting that Registered Nurses (RNs) and Licensed Practical Nurses (LPNs) had more positive attitudes than Certified Nursing Assistants (CNAs). Conversely,



Zuzelo and Seminara (2006) found that highest degree earned was not associated with nurses' weight-related attitudes, and there was no difference in attitudes between nursing students in an undergraduate versus graduate program (Culbertson & Smolen, 1999).

Education and training related specifically to obesity were not found to significantly influence nurses' attitudes. Gujral et al. (2011) found that nurses in a hospital that provided "bariatric sensitivity training" (i.e., training in special issues related to obese patients) had no differences in weight-related attitudes from nurses in a hospital without this training. In two studies, Ogden and Hoppe (1997, 1998) also found that providing education to nurses about the causes of obesity had little effect on nurses' weight-related attitudes.

Findings regarding the influence of certain job characteristics upon nurses' weight-related attitudes have also been reported. Nurses who regularly cared for obese patients were found to have more negative attitudes toward obese patients (Garcia et al., 2016), but nurses' degree of involvement with specific weight-loss work was not significantly associated with weight-related attitudes (Hoppe & Ogden, 1997). Nurses working in areas with higher patient acuity (i.e., high intensity of care required for each patient) had more negative attitudes toward obese patients (Garcia et al., 2016; Zuzelo & Seminara, 2006). Part-time nurses reported more negative attitudes than full-time nurses (Garcia et al., 2016). No attitude differences were noted between nurses and their clinical support staff (Garcia et al., 2016), nor between district nursing team staff, visiting health nurses, and practice nurses (Brown et al., 2007).

In two cases, influences of race/ethnicity were examined. Maroney and Golub (1992) found that nurses who reported racial or ethnic prejudice were more likely to report negative

weight-related attitudes. Garcia et al. (2016) noted that Hispanic nurses reported more negative attitudes toward obese patients compared to nurses of other ethnicities.

Nurse sex was not found to be associated with differences in weight-related attitudes (Brown et al., 2007; Garner & Nichol, 1998; Poon & Tarrant, 2009; Swift et al., 2012). The exception was Young and Powell's (1985) study with mental health providers (including psychiatric NPs) which found that female clinicians exhibited a more pronounced difference than male clinicians in terms of harsher judgments toward heavy patients compared to light patients.

Previous research has been useful in identifying characteristic of nurses and their jobs that are likely to influence attitudes toward obese patients. However, no previous study examined whether these characteristics function as moderators of the relationship between patient weight and nurses' attitudes. Furthermore, no study analyzed nurse characteristics and weight-related attitudes together in a regression model to predict clinical decisions. Such a process would reveal the effects of these variables while controlling for the others, and would allow for mediation analysis. In the absence of such analyses, previous research regarding nurse characteristics and weight-related attitudes has not fully clarified the specific nature of the relationships between key variables.

### **Influence of Patient Sex**

Peternelj-Taylor (1989) was the only study with nurses (specifically, nursing students) to incorporate patient sex in examining the influences of patient weight upon provider attitudes. It was found that male patients were evaluated more negatively than female patients, but patient sex and weight did not interact to influence attitudes. A study with physicians had similar

findings (Hebl & Xu, 2001). Patient sex and weight did not interact to influence weight-related attitudes. In this case, however, patient sex was also not found to have a main effect. Patient sex could not be examined at all in Young and Powell's (1985) study of mental health clinicians, because all of the stimulus patients used in the study were female.

Patient sex was not central to the research questions of the current study. Furthermore, existing research found that patient sex did not interact with patient weight in determining weight-related attitudes. For these reasons, hypotheses related to patient sex were not included. However, both male and female stimulus patients were utilized, so it could still be determined whether a main effect or interaction effect related to patient sex was present.

### **Need for Continued Research**

The growing number of obese patients in the U.S. have the potential to be negatively impacted by weight-related attitudes among nurses. Although previous research verified the existence of these negative attitudes, and identified some nurse characteristics associated with differences in weight-related attitudes, much remains to be learned.

Nurses' weight-related attitudes, previously measured using explicit questions about attitudes toward obese patients in general, could be better examined using an experimental method, in which nurses report attitudes about a specific stimulus patient (without awareness that the patient's weight has been manipulated). Such an experimental study has not previously been conducted with a sample of practicing nurses.

Clinical decision outcomes, almost entirely absent in previous weight-related attitude research with nurses, should be measured for a number of clinical situations specifically relevant to the provision of nursing care. A particularly fruitful clinical situation for examination

would be post-surgical walking, an aspect of care that presents unique challenges for obese patients, but which has never before been quantitatively analyzed.

Nurse characteristics, previously tested only as direct predictors of nurses' general attitudes toward obese patients, should be analyzed as moderators of the extent to which a specific patient's weight influenced nurses' attitudes toward that patient. Such analyses would be more theoretically useful than simply describing the general weight-related attitudes among different subgroups of nurses.

In previous studies, provider decisions and provider attitudes were treated as separate outcomes (if provider decisions were included at all). Instead, it should be examined whether attitudes mediated decisions in response to weight, controlling for relevant nurse characteristics. In this way, it could be examined how multiple relevant variables relate to one another as nurses respond to patients of various weights.

### **Overview and Hypotheses**

The current study utilized an anonymous survey in which the weight of a hypothetical patient was experimentally manipulated using high-resolution photographs. A sample of practicing nurses then responded to a series of clinical vignettes, indicating their clinical decisions and attitudes toward the patient. Clinical decisions were examined for time spent with patient, pain management, patient-centered communication, and post-surgical ambulation. Multiple regression was used to analyze moderators and mediators of the relationship between patient weight and nurses' care decisions. A brief scale was also created to measure nurses' perceptions of the practical demands of providing walk assistance, so that this potential influence could be included as part of the mediation analyses.

**Hypothesis 1.** Patient obesity will have a significant negative correlation with nurses' attitudes toward the patient (controlling for nurses' BMI and age).

**Hypothesis 2.** Nurse BMI will significantly buffer the negative correlation between patient obesity and nurses' attitudes toward the patient.

**Hypothesis 3.** Nurse age will significantly buffer the negative correlation between patient obesity and nurses' attitudes toward the patient.

**Hypothesis 4.** Nurses' attitudes toward the patient will mediate a negative relationship between patient obesity and the amount of time nurses decide to spend with the patient.

**Hypothesis 5.** Nurses' attitudes toward the patient will mediate a negative relationship between patient obesity and the level of pain management care nurses decide to provide.

**Hypothesis 6.** Nurses' attitudes toward the patient will mediate a negative relationship between patient obesity and nurses' decisions to use patient-centered communication.

**Hypothesis 7.** Nurses' attitudes toward the patient and nurses' perceptions about the practical demands of providing walk assistance will each mediate a negative relationship between patient obesity and decisions regarding walk assistance.

## **Method**

### **Participants**

**Eligibility.** Any nurse was eligible to participate. There were usable data for 256 participants after excluding cases that presented a potential source of bias. Validity checks indicated that these 256 participants were all unaware of the study purpose beforehand, perceived the patient photograph and nursing decisions to be realistic and applicable, and

described the weight of the patient using a label that was compatible with the photograph they viewed.

To arrive at the final sample of 256, nineteen participants were excluded because they did not finish the survey (and thus did not answer the question indicating whether they had known about the study purpose). Fourteen were excluded because they felt the vignettes were not at all applicable to their particular nursing practice. Nine were excluded because they had been told or guessed the survey purpose beforehand. Finally, eight were excluded because they did not find the decisions or photograph to be realistic, and eight because they described the weight of the patient using a label that was incompatible with the photograph they viewed.

The final sample size ( $n = 256$ ) provided sufficient power for all analyses in the study. It exceeded the minimum of 159 required to achieve .8 power in the hierarchical regression (Cohen, Cohen, West, & Aiken, 2003) and the minimum of 162 required to achieve .8 power in the mediation analyses (Fritz & MacKinnon, 2007) each assuming a small to medium effect size.

**Demographics.** There were 235 female participants (91.8%) and 21 male participants (8.2%). The mean age was 45.76 years ( $SD = 12.24$ ), with a minimum of 22 and a maximum of 69. The most commonly reported race/ ethnicity was Caucasian (93.0%), followed by mixed race or ethnicity (2.0%), African American (1.2%), Hispanic or Latino (1.2%), American Indian or Alaskan Native (0.8%), Asian or Pacific Islander (0.4%), or another race/ ethnicity (0.4%).

**Nursing qualifications and experience.** Participants were certified as Registered Nurses (RN; 37.9%), Nurse Practitioners (NP; 3.2%), Clinical Nurse Specialists (CNS; 4.7%), or Licensed Practical Nurses (LPN; 0.8%). The remaining participants did not report their licensure, but

indicated they had earned a BSN (31.6%), ADN (11.3%), MSN (9.4%), or DNP (0.8%). The mean years of experience was 19.29 years ( $SD = 12.90$ ) with a minimum of 1 and a maximum of 49.

**Nursing positions.** Medium-sized hospitals (100 – 499 beds) were the employer of 55% of participants, small hospitals (less than 100 beds) and large hospitals (500 beds or more) 12.5% each, outpatient clinics 10.5%, and other sites 9.4%. The primary job responsibility was direct inpatient care for 46.6% of the sample, direct outpatient care for 20.7%, and other responsibilities for 32.0%. Participants worked in more than 20 different medical specialty areas, the most common of which were emergency or critical care (19.9%), medical-surgical (13.3%), nursing management (11.7%), and outpatient/ambulatory care (10.5%). On average, participants had provided post-surgical care slightly more than “moderately often” ( $M = 4.79$  on a 1-7 scale,  $SD = 2.21$ ), with a minimum rating of 1 and a maximum of 7 in the sample.

## **Design**

The study was a 2x2x2 factorial experiment. Participants were randomly assigned to view a photograph of a hypothetical patient that was normal-weight or obese, male or female, and one of two different patient models per sex. The photograph was presented along with a series of clinical vignettes about interactions with the patient, which were identical across conditions.

## **Instruments**

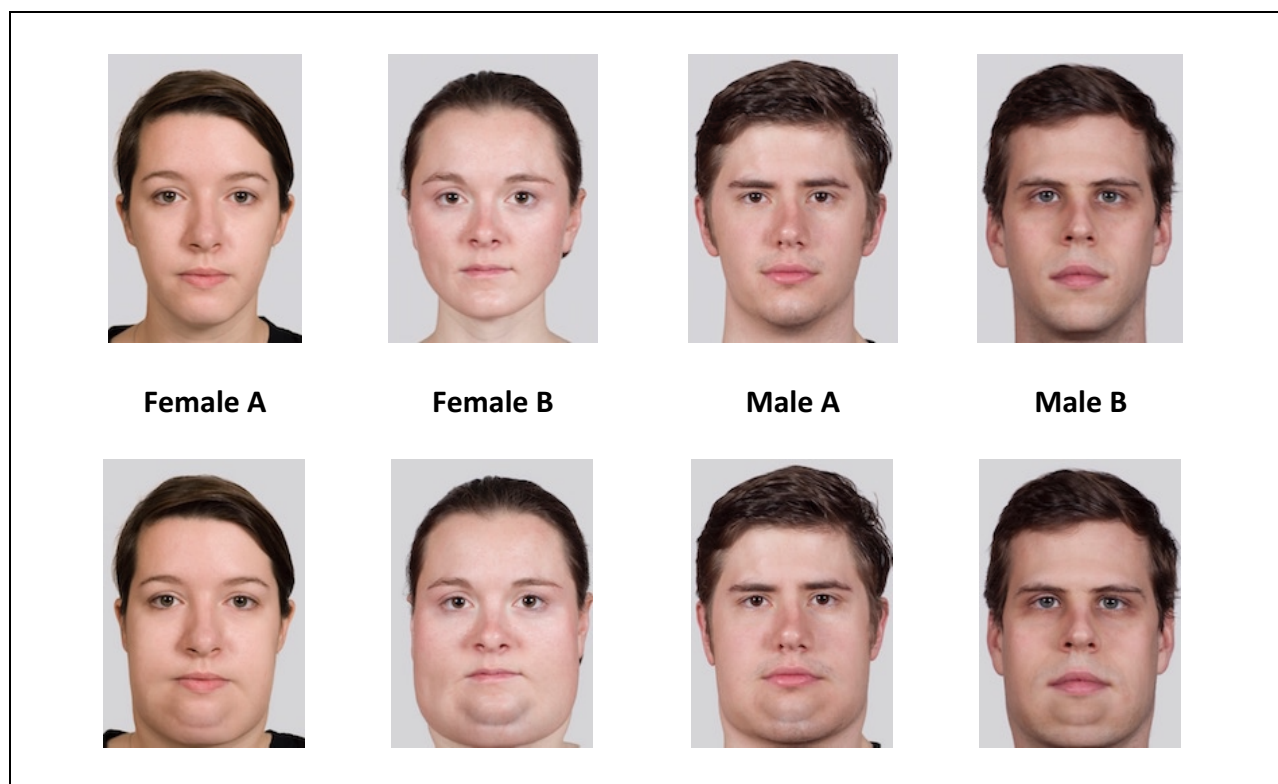
Data were collected through an anonymous online survey hosted through UW-Milwaukee Qualtrics. The survey included the patient photograph and clinical vignettes, assessments of clinical decisions and attitudes toward the patient, validity checks, and

questions about participants' job characteristics, demographics, and personal satisfaction. The full survey is provided in the Appendix.

**Patient photographs.** A useful technique in previous studies about weight-related attitudes has been to alter a photograph of a person of normal weight such that they appear obese, thus creating a second photo of that person which differs only in terms of apparent weight. Perhaps the most standardized photographs of this type were created by the Harvard Implicit Project for use in the weight-related IAT. However, consultation with several graduate students and faculty, as well as with professional photographers and designers, revealed consistent concerns that the “obese” individuals depicted in these photographs did not appear realistic, and further that the black-and-white photographs were poor in resolution. Thus, new photographs were created for the current study.

Several facial photographs were chosen from the MR2 database of facial stimuli (Strohming et al., 2016) as candidates for inclusion. The chosen models all appeared to be in their early 30s, in order to minimize the possibility that obesity might be considered “normal” for a person of his or her age in the United States. They were all Caucasian individuals who appeared to be of average attractiveness and normal weight. A small convenience sample assessed these qualities in each photograph, after which two male and two female models were selected. A copy of each photograph was altered to appear obese using the iPhone application “Fatify.” Another convenience sample assessed the altered photographs for realism. The final photographs are displayed in *Figure 1*.





*Figure 1.* Photographs used to represent the hypothetical patient. Each participant was randomly assigned one of eight possible photographs.

**Clinical vignettes and care decisions.** A series of vignettes were developed in consultation with nurses from various age groups and professional backgrounds. Vignettes described hypothetical interactions between participants and the patient character, who was recovering from emergency appendectomy surgery (an ailment medically unrelated to weight). Medical information and descriptions of the patient’s verbal and non-verbal responses were included. Each was followed by questions about associated care decisions, which utilized 7-point Likert scales or requested a numeric estimate (e.g., number of visits, average visit length). Nursing consultants reviewed the final survey to ensure clarity, medical accuracy, and relevance.

**Anticipated time with patient.** The first vignette provided a brief status update about the patient's condition, along with the first photograph of the patient (which was repeated on each subsequent page). Participants estimated how long they would spend on their initial assessment visit. After the last vignette, which described the nurse's final interaction with the patient before leaving the room, participants estimated how many additional times they would visit the patient over the course of the 8-hour shift and the average length of each visit. Along with participants' earlier estimation of the length of their initial visit, these responses were used to calculate total anticipated time with the patient.

**Pain management.** The second vignette described the patient's vital signs, position, pallor, and self-reported pain level, which are pain cues that have influenced nurses' pain assessments in previous research (Hirsh, George, & Robinson, 2009; Hirsh, Jensen, & Robinson, 2010; LaFond et al., 2015). The doctor's pain medication orders and the most recent dose were described. The orders indicated that the nurse could administer Tylenol (acetaminophen) or stronger pain medication (narcotic) as needed, a common practice in post-surgical care. Participants rated the urgency of administering the next dose, their likelihood to administer acetaminophen and a narcotic, and the importance of minimizing the patient's pain. One advantage of the pain-related vignette is that it addressed a common clinical decision for nurses: which type of pain medication to administer, and when. Given nurses' negative feelings toward obese patients, as well as perceptions that they are "overly dramatic" (Garcia, 2012), nurses viewing an obese patient may take pain concerns less seriously, and take less action to alleviate it. Another advantage of the pain-related vignette was that it informed nurses' decisions in subsequent vignettes about patient walking (ambulation); pain often interferes

with post-surgical patients' willingness to walk, and nurses must judge how to navigate this obstacle.

**Walk assistance.** Across the next three vignettes, the nurse character asked the patient to get up for ambulation using the walker, as recommended by the doctor's instructions. After some reluctance, the patient agreed and the nurse assisted with a short walk. Participants indicated the extent to which they expected the walk to be time-consuming, physically demanding, likely to result in nurse injury, and likely to require additional assistance from a second staff member. The sum of these four items created a 24-point scale of the perceived practical demands of walk assistance, which demonstrated sufficient internal reliability (Cronbach's  $\alpha = .751$ ). Participants also indicated the likelihood that a second staff member would be immediately available if needed, and estimated the number of times he or she would personally provide walk assistance during the 8-hour shift. Finally, nurses rated how important walking was to patient recovery, how closely they would monitor the patient's amount of walking, how comfortable they would feel with the patient walking while the nurse was out of the room, and how much responsibility fell onto the patient and onto the nurse to ensure enough walking.

Assisted walking has been identified as an issue of special concern when caring for obese patients, both in previous research (Garcia, 2012; Zuzelo & Seminara, 2006) and in consultation with nurses during planning of this study. According to these researchers and consultants, increased patient weight creates increased demands for the nurse in terms of physical exertion, time, and staffing, and creates increased risk of injury for both nurse and patient. Furthermore, nurses may perceive that the patient is unwilling to put appropriate

effort into movement, increasing the frustration associated with this task. The issue of walking was chosen due to its relevance, complexity, and the degree of freedom nurses have in its related care decisions.

**Patient-centered communication.** Three items assessed the extent to which participants felt they would trust the patient's report of symptoms, listen to all of the patient's concerns before making care decisions, and discuss the medical reasons for care decisions with the patient. Items were developed to reflect the use of communication strategies consistent with patient-centered care, defined as "care that is respectful of, and responsive to, individual patient preferences, needs and values, and ensur[es] that patient values guide all clinical decisions" (Institute of Medicine, 2001, p. 3). Results indicated that these items were not reliable as a scale (Cronbach's  $\alpha = .529$ ), so the three questions were analyzed separately.

**Attitudes toward the patient.** Fourteen items were included. Select items were adapted from the original and updated versions of the Attitudes Toward Obese Adult Patients Scale (Bagley et al., 1989; Watson et al., 2008), and several new items were developed to reflect feedback from nurse consultants and findings from previous qualitative research. After reverse scoring, the sum of total attitudes had an 84-point range (Cronbach's  $\alpha = .862$ ).

**Perceptions of photographs and vignettes.** After all decisions and attitudes were recorded, participants were asked how they would describe the patient from the photograph: extremely underweight, underweight, normal weight, overweight, obese, or extremely obese. They also chose the body-type silhouette they felt best represented the patient (World Public Health Nutrition Association; PublicHealth.Org). Participants also rated how realistic the

photograph and nursing decisions were, as well as how applicable the decisions were to their own clinical practice.

**Job and personal information.** Participants indicated their nursing qualifications, experience, specialty area, primary job responsibility, post-surgical experience, perceived workload, and type of work site. They also provided their sex, race/ethnicity, age, and weight and height (used to calculate BMI). Finally, they rated satisfaction with their own life, job, and body type (one item each). Internal reliability was higher when body satisfaction was excluded, leading to acceptable reliability for the sum of life and job satisfaction (Coefficient  $\alpha = .781$ ).

**Order of question presentation.** Questions were ordered to avoid leading the nurses in their responses. For each encounter, participants were asked to report clinical decisions first, with the freedom to focus on any information they deemed relevant, just as they would in clinical practice. Afterward, they were asked questions about possible practical considerations behind their decisions. Attitudes toward the patient were assessed last. No reference to weight was made until after all questions about the hypothetical patient were answered.

**Survey conclusion.** At the end of the survey, participants indicated whether or not anyone had told them about the weight-related questions or patient photograph before the survey. They had the opportunity to enter any comments, and were then directed to a debriefing page, which provided information about the weight-related research questions, the study design, and whom to contact with any questions. The debriefing page also asked nurses not to share information about the survey with anyone else, and thanked them for their participation. At the end of the debriefing page, participants had another opportunity to enter any comments.

## **Procedure**

Recruitment took place through several nursing organizations and one large Midwestern hospital. The nursing organizations were all based in Wisconsin, with the exception of one national organization. Invitations containing a link to the anonymous online survey were posted on the organizations' websites and emailed out to potential participants. IRB-approved invitation messages explained the survey was part of research about nurses' clinical decision-making and described what participation entailed, but did not point out the weight-related research questions. Recipients were also encouraged to forward the invitation to any other nurses who might be interested.

At the anonymous link, participants viewed study consent information, then completed the survey (approximately 10 - 20 minutes). Afterward, participants viewed the debriefing page including the request not to share study information with others.

## **Results**

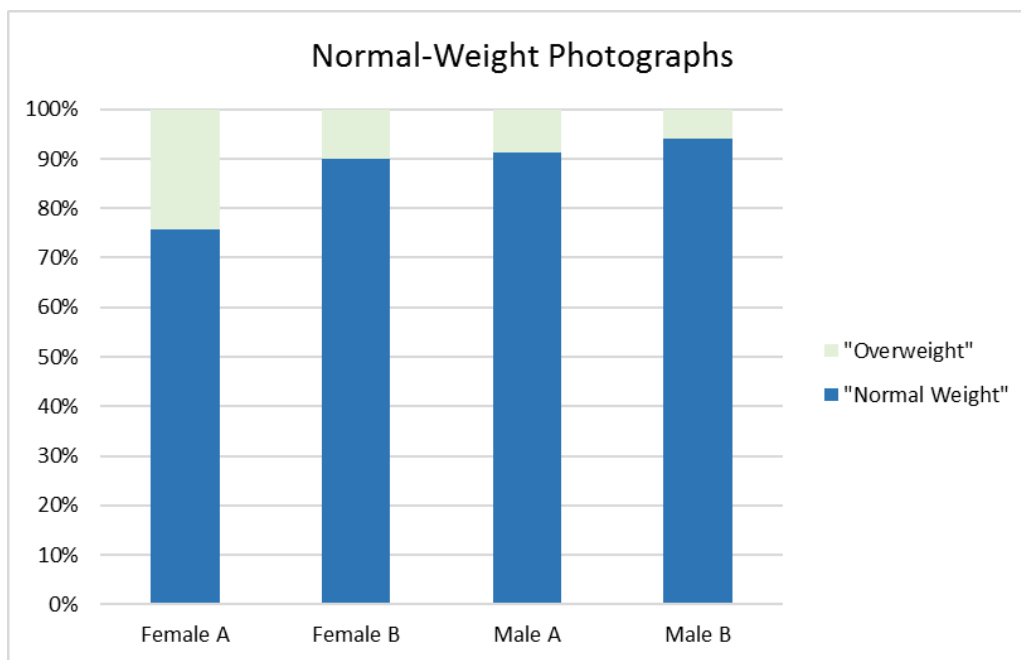
### **Perceptions of Vignette**

Mean perceived realism of the nursing decisions was 5.50 out of 7 ( $SD = 1.22$ ). Mean perceived applicability of the nursing decisions to the participant's own nursing practice was 5.35 ( $SD = 1.40$ ).

### **Perceptions of Patient Photographs**

Mean perceived realism of the patient photograph was 5.27 ( $SD = 1.45$ ). It was not significantly affected by patient weight ( $F(1, 244) = 2.48, p = .117$ ), specific patient model ( $F(3, 244) = 0.87, p = .455$ ), or their interaction ( $F(3, 244) = 0.59, p = .624$ ).

There was variability in how participants described the weight of the different patient photographs. The effect of specific patient model on verbal weight label was not significant within the normal-weight photograph condition (*Figure 2*;  $\chi^2 = 6.23$ ,  $p = .101$ ), but it was significant within the obese photograph condition (*Figure 3*;  $\chi^2 = 14.84$ ,  $p = .022$ ). The pattern of results was also similar for participants' choices of body silhouettes to represent the patient. As a validity check, two-way ANOVAs with patient model and patient weight as factors were performed for each outcome prior to other analyses. There were no main or interaction effects for patient model, so the remainder of analyses were collapsed across models.



*Figure 2.* Descriptions of normal-weight patient photographs by specific patient model.



Figure 3. Descriptions of obese photographs by specific patient model.

### Attitudes toward Patient

**Hypothesis 1.** Patient obesity will have a significant negative correlation with nurses' attitudes toward the patient (controlling for nurses' BMI and age).

**Hypothesis 2.** Nurse BMI will significantly buffer the negative correlation between patient obesity and nurses' attitudes toward the patient.

**Hypothesis 3.** Nurse age will significantly buffer the negative correlation between patient obesity and nurses' attitudes toward the patient.

Overall attitudes toward the patient were positive for patients of both normal weight ( $M = 62.15$  out of 84 possible,  $SD = 10.91$ ) and those of obese weight ( $M = 59.94$ ,  $SD = 10.73$ ). The hierarchical regression model in *Table 1* tested **Hypothesis 1-3**. Due to significant bivariate correlations with total attitudes, control variables of nurse sex, life/job satisfaction, and perceptions of vignette realism were included. (Attitudes were not significantly affected by nurses' race, primary job responsibility, medical specialty area, work site, frequency of post-



surgical care provision, overall workload, or education/certification.) To confirm that perceived vignette realism did not have a problematic moderating effect upon weight, the weight-by-perceived realism interaction term was also included.

Table 1

*Hierarchical Regression to Predict Nurses' Attitudes toward Patient*

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<i>Step 1:</i> Nurse BMI, age, female sex, life/job satisfaction, and perceived realism of decisions
<i>Step 2:</i> Patient weight
<i>Step 3:</i> Perceived realism of decisions*Patient weight
<i>Step 4:</i> Nurse BMI*Patient weight
<i>Step 5:</i> Nurse age*Patient weight
<i>Step 6:</i> Patient sex
<i>Step 7:</i> Patient sex*Patient weight

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**Hypothesis 1** was supported; patient weight had a significant, negative impact on attitudes, explaining 1.7% additional variance above and beyond the controls,  $\Delta R^2 = .017$ ,  $F(1, 231) = 4.82$ ,  $p = .029$ . **Hypotheses 2** and **3** were not supported; patient weight did not significantly interact with nurse BMI,  $\Delta R^2 = .001$ ,  $F(1, 229) = 0.37$ ,  $p = .543$ , nor with nurse age,  $\Delta R^2 = .003$ ,  $F(1, 228) = 0.72$ ,  $p = .399$ . Additional exploratory analysis revealed that there was no significant influence of patient sex or the patient sex-by-weight interaction ( $R^2 = .001$ ,  $F(1, 227) = 0.17$ ,  $p = .682$ ;  $\Delta R^2 < .001$ ,  $F(1, 226) = 0.07$ ,  $p = .793$ ). Perceived vignette realism did not interact with patient weight,  $\Delta R^2 = .002$ ,  $F(1, 230) = 0.51$ ,  $p = .474$ .

Patient sex and the non-significant interaction terms were removed from the final model. The model explained a significant percentage of variance (16.7%) in attitude scores,  $R^2 = .167$ ,  $F(6, 231) = 7.74$ ,  $p < .001$ . From greatest to least relative strength, the significant predictors of more positive attitudes were greater life/job satisfaction, higher perceived

vignette realism, female nurse sex, higher nurse age, and lower patient weight. Regression coefficients are shown in *Table 2*.

Table 2

*Regression Coefficients for Nurses' Attitudes toward Patient*

Predictors	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>	Part
Life/job satisfaction**	0.69	0.22	.206	3.12	.002	.187
Perceived realism of decisions**	1.75	0.54	.199	3.26	.001	.196
Nurse female gender**	7.01	2.41	.177	2.91	.004	.175
Nurse age**	0.15	0.06	.168	2.70	.008	.162
Patient weight*	-2.87	1.31	-.133	-2.20	.029	-.132
Nurse BMI	0.18	0.11	.111	1.62	.107	.097

\* $p < .05$ . \*\* $p < .01$ .

Descriptive statistics for each individual attitude item (*Table 3*) provide further insight into the differences between specific attitudes based on patient weight. The largest mean differences were nurses' increased concern that the obese patients might have poorer hygiene, and that they were likely to be lazier, care less about their own health, and put in less effort to improve it. The smallest mean differences were in empathy and concern (which were high for patients of both weights), and in stress, a desire not to touch the patient, and a desire to care for a different patient instead (low for patients of both weights). Independent *t* tests revealed that the only significant difference was for perceived hygiene. The difference for perceived laziness approached significance ( $p = .099$ ).

Table 3

*Descriptive Statistics for Attitude Scale and Items by Weight Condition, Ordered in Decreasing Magnitude of the Mean Difference*

	Normal-Weight Patient			Obese Patient			Mean Difference
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i> <sub>obese - normal</sub>
<b>Attitude Scale Total (0 - 84)</b>							
Total Attitudes	131	62.15	10.91	123	59.94	10.73	-2.20
<b>Attitude Items (1 - 7)</b>							
Patient may have poor hygiene*	131	1.81	1.25	124	2.31	1.54	0.50
Patient is lazy†	131	1.93	1.30	124	2.21	1.38	0.28
Patient cares about own health	131	4.33	1.22	124	4.09	1.18	-0.24
Patient puts forth effort	131	3.89	1.32	124	3.67	1.20	-0.22
Emotionally draining	131	2.31	1.28	123	2.52	1.51	0.21
Frustrating	131	2.20	1.42	124	2.41	1.47	0.21
I can make a difference	131	5.95	0.97	124	5.81	1.12	-0.14
Fulfilling	131	5.12	1.34	124	4.98	1.40	-0.14
Patient is cooperative	131	4.15	1.32	124	4.02	1.10	-0.13
Prefer not to touch patient	131	1.18	0.64	124	1.25	0.63	0.07
Easy to take concerns seriously	131	5.25	1.33	124	5.19	1.29	-0.06
Stressful	131	1.96	1.24	124	1.91	1.16	-0.05
Feel empathy	131	5.08	1.36	124	5.03	1.29	-0.05
Would prefer different patient	131	2.24	1.79	124	2.22	1.61	-0.02

\* $p < .05$ . † $p = .099$ .

### Anticipated Time with Patient

**Hypothesis 4.** Nurses' attitudes toward the patient will mediate a negative relationship between patient obesity and the amount of time nurses decide to spend with the patient.

Participants anticipated approximately 1 hour of time with the patient during the 8-hour shift. There was a difference of 5.76 minutes between nurses who viewed a normal-weight

patient ( $M = 65.02$  minutes,  $SD = 30.65$ ) versus an obese patient ( $M = 59.26$  minutes,  $SD = 25.85$ ). Variability in anticipated time scores was high, with a minimum of 11 minutes, a maximum of 2.5 hours, and a standard deviation of 28.56 minutes.

To examine the mediation predicted in **Hypothesis 4**, anticipated time was first regressed on patient weight to determine the total effect. No control variables were included in the model, as the only variable in the study found to have a significant bivariate correlation with anticipated time was anticipated walk assists (a separate study outcome). Results revealed that patient weight had a negative relationship with anticipated time spent, but the relationship was not significant,  $R^2 = .101$ ,  $F(1, 243) = 2.50$ ,  $p = .115$ . Attitudes did not significantly influence time spent, controlling for patient weight,  $\Delta R^2 < .001$ ,  $F(1, 241) = 0.10$ ,  $p = .980$ . Thus, **Hypothesis 4** was not supported.

## **Pain Management**

**Hypothesis 5.** Nurses' attitudes toward the patient will mediate a negative relationship between patient obesity and the level of pain management care nurses decide to provide.

When participants' comments were examined, it was revealed that many had described additional information they felt was necessary to make confident decisions about medication administration, including a comprehensive medical history and further conversations with both patient and doctor. Due to these concerns, analysis of Hypothesis 5 was not carried out.

## **Patient-Centered Communication**

**Hypothesis 6.** Nurses' attitudes toward the patient will mediate a negative relationship between patient obesity and nurses' decisions to use patient-centered communication.

Descriptive statistics for patient-centered care questions by weight condition are shown in *Table 4*. The largest mean difference between obese and normal-weight patients was in the perceived importance of listening to all of the patient's concerns before making care decisions, followed by trust in the patient's report of his or her symptoms, and finally the importance of discussing medical reasons behind care decisions with the patient. Independent *t* tests revealed that none of these differences were significant.

Table 4

*Descriptive Statistics for Patient-Centered Communication Questions by Weight Condition, Ordered in Decreasing Magnitude of the Mean Difference*

<b><i>Patient-Centered Care Items (1 - 7)</i></b>	<b>Normal-Weight Patient</b>			<b>Obese Patient</b>			<b>Mean Difference</b>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i> <sub>obese - normal</sub>
Important to listen to all concerns	132	6.52	0.79	123	6.43	0.87	-0.09
Trust patient's report of symptoms	132	5.68	1.07	124	5.60	1.15	-0.08
Important to discuss medical reasons	132	6.85	0.42	123	6.78	0.54	-0.07

*Note.* There were no significant differences between weight conditions.

Each communication question was analyzed separately during mediation analysis. Three control variables were included in all regression models due to significant, positive bivariate correlations with one or more communication questions: nurse age, perceived overall workload, and perceived vignette realism. To confirm that perceived realism did not have a problematic moderating effect upon weight or attitudes, these interaction terms were also included in their respective models.

Results are summarized in *Table 5*. For each question, analyses revealed that weight had a negative, but non-significant, influence upon patient-centered communication (over and

above control variables). Thus, **Hypothesis 6** was not supported. It was noted that attitudes had a significant positive effect (over and above controls and patient weight) for listening to patient's concerns (6.4% of variance) and trust in patient's report (9.7% of variance), but this influence was not significant for discussing medical reasoning with the patient (0.7% of variance). The interaction of perceived vignette realism with patient weight and with attitudes toward the patient were non-significant in all models, and were thus removed.

Table 5

*Hierarchical Regressions of Patient-Centered Communication Questions*

Predictors	Outcome		
	Listen to all of patient's concerns	Trust patient's report of symptoms	Discuss medical reasons with patient
<b>Step 1</b> Nurse age, workload, and perceived vignette realism	$R^2 = .039$ $F(1, 236) = 3.22$ $*p = .023$	$R^2 = .071$ $F(1, 237) = 6.03$ $**p = .001$	$R^2 = .019$ $F(1, 236) = 1.56$ $p = .201$
<b>Step 2</b> Patient weight	$\Delta R^2 = .002$ $F(1, 235) = 0.50$ $p = .481$	$\Delta R^2 = .003$ $F(1, 236) = 0.80$ $p = .373$	$\Delta R^2 = .006$ $F(1, 235) = 1.43$ $p = .233$
<b>Step 3</b> Attitudes toward patient	$\Delta R^2 = .064$ $F(1, 234) = 16.87$ $***p < .001$	$\Delta R^2 = .097$ $F(1, 235) = 27.37$ $***p < .001$	$\Delta R^2 = .007$ $F(1, 234) = 1.63$ $p = .203$

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

## Walk Assistance

**Hypothesis 7.** Nurses' attitudes toward the patient and nurses' perceptions about the practical demands of providing walk assistance will each mediate a negative relationship between patient obesity and decisions regarding walk assistance.

**Demands of providing walk assistance.** Total anticipated demands were significantly higher for nurses who viewed an obese patient ( $M = 9.44$  out of 24,  $SD = 4.31$ ) than for nurses

who viewed a normal-weight patient ( $M = 8.12$ ,  $SD = 3.81$ ),  $t(249) = 2.58$ ,  $p = .011$ . Descriptive statistics for individual items are shown in *Table 6*. Nurses who viewed obese patients anticipated walk assistance would be significantly more physically demanding ( $t(253) = 2.95$ ,  $p = .004$ ), create a greater risk of nurse injury ( $t(235) = 3.15$ ,  $p = .002$ ), and create a greater necessity to have additional assistance from a CNA or another nurse ( $t(251) = 2.21$ ,  $p = .028$ ). There was no significant difference in how time-consuming walk assistance was anticipated to be ( $t(254) = .303$ ,  $p = .762$ ). Total perceived demands of providing walk assistance were not significantly correlated with attitudes toward the patient ( $r = -.065$ ,  $p = .304$ ). Walk demands were perceived to be higher among nurses who rated their overall workload as higher ( $r = .153$ ,  $p = .016$ ), and among nurses who worked in large hospitals ( $M = 9.90$ ,  $SD = 4.65$ ) compared to small hospitals ( $M = 6.97$ ,  $SD = 4.46$ ),  $t(60) = 2.54$ ,  $p = .014$ . Perceived demands were not influenced by nurses' race, primary job responsibility, medical specialty area, frequency of post-surgical care provision, or education/certification.

Table 6

*Descriptive Statistics for Demands of Providing Walk Assistance Scale and Items by Weight Condition, Ordered in Decreasing Magnitude of the Mean Difference*

	Normal-Weight Patient			Obese Patient			Mean Difference
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i> <sub>obese - normal</sub>
<b>Walk Assistance Scale (0 - 28)</b>							
Total demands of walk assistance*	128	8.12	3.81	123	9.44	4.31	1.32
<b>Walk Assistance Items (1 - 7)</b>							
Risk injury**	131	2.66	1.06	124	3.14	1.32	0.48
Additional staff needed*	130	3.54	1.61	123	3.99	1.65	0.45
Physically demanding**	131	2.31	1.14	124	2.75	1.27	0.44
Time consuming	132	3.62	1.22	124	3.57	1.35	-0.05

\* $p < .05$ . \*\* $p < .01$ .

**Number of walk assists.** The mean number of times that nurses anticipated they would personally assist the patient with a walk during the 8-hour shift was slightly below 3 assists, with a difference of 0.15 between nurses who viewed a normal-weight patient ( $M = 2.92$ ,  $SD = 1.06$ ) and those who viewed an obese patient ( $M = 2.77$ ,  $SD = 0.88$ ).

The conceptual model for **Hypothesis 7** is shown in *Figure 4*. Two control variables were included in all regression models due to significant bivariate correlations with anticipated number of assists: nurse age, and the likelihood that a second staff member would be immediately available for additional assistance if needed.

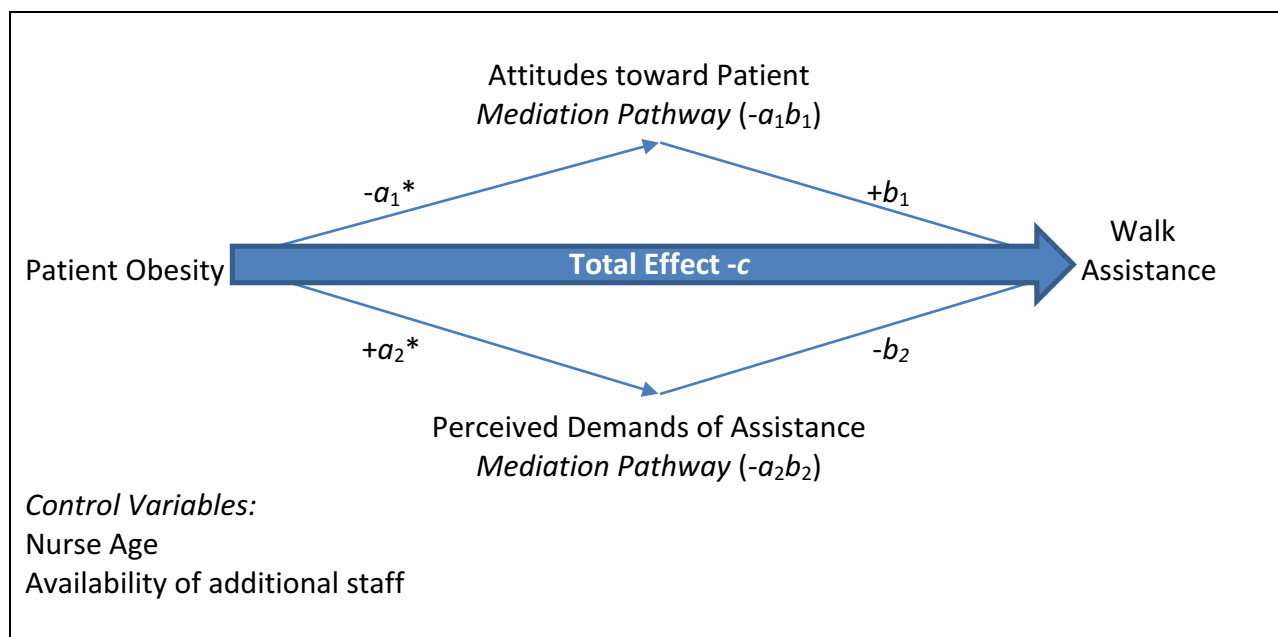


Figure 4. Parallel mediation model for **Hypothesis 7**. Positive and negative signs indicate the predicted direction of each influence, all of which were confirmed by the results. An asterisk denotes relationships found to be significant during analyses ( $\alpha = .05$ ).

Weight was not found to have a total effect on anticipated number of walk assists, controlling for nurse age and additional staff availability, (path  $c$ ;  $\Delta R^2 = .006$ ,  $F(1, 242) = 1.66$ ,  $p = .198$ ). Although this finding indicated that **Hypothesis 7** was not supported, remaining analyses



were still conducted to further explore the connection between these four variables. All relationships were in the predicted direction. Two separate regressions revealed that weight significantly influenced both perceived attitudes toward the patient (path  $a_1$ ;  $\Delta R^2 = .015$ ,  $F(1, 243) = 3.95$ ,  $p = .048$ ) and perceived walk demands (path  $a_2$ ;  $\Delta R^2 = .032$ ,  $F(1, 239) = 7.86$ ,  $p = .005$ ), each controlling for nurse age and staff availability. Attitudes did not have a significant effect upon number of assists when controlling for nurse age, staff availability, and weight (path  $b_2$ ;  $\Delta R^2 = .009$ ,  $F(1, 240) = 2.28$ ,  $p = .132$ ). Perceived demands also did not have a significant effect upon number of assists when controlling for nurse age, staff availability and weight (path  $b_1$ ;  $\Delta R^2 = .013$ ,  $F(1, 236) = 3.21$ ,  $p = .075$ ).

Additional analyses revealed that when weight was not controlled, attitudes were still not a significant influence on walk assistance ( $\Delta R^2 = .011$ ,  $F(1, 241) = 2.78$ ,  $p = .097$ ), but that the negative influence of perceived demands on walk assistance reached a significant level ( $\Delta R^2 = .013$ ,  $F(1, 236) = 3.21$ ,  $p = .048$ ). The possibility that patient weight interacted with availability of additional staff was also explored, but the interaction was not significant above and beyond the effects of nurse age, staff availability, and patient weight ( $\Delta R^2 < .001$ ,  $F(1, 249) = 0.07$ ,  $p = .786$ ).

A final model included all relevant variables simultaneously. The model significantly predicted walk assistance, explaining 8.9% of variance in scores,  $\Delta R^2 = .089$ ,  $F(5, 234) = 4.59$ ,  $p = .001$ . The predictors in order from greatest to least relative strength were immediate availability of additional staff, perceived demands of providing assistance, nurse age, attitudes toward patient, and patient weight. Only availability of additional staff was significant. Regression coefficients are displayed in *Table 7*.

Table 7

*Regression Coefficients for Anticipated Number of Walk Assists Over 8-Hour Shift*

Predictors	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>	Part
Staff immediately available**	0.12	0.44	.198	3.15	.002	.197
Demands of walk assistance	-0.03	0.04	-.109	-1.71	.088	-.107
Nurse age	0.01	0.02	.106	1.64	.102	.102
Attitudes toward patient	0.01	0.01	.099	1.53	.129	.095
Patient weight	-0.10	0.13	-.048	-0.75	.456	-.047

\*\* $p < .01$ .

It should be noted that nurses' primary job responsibility (direct inpatient care, direct outpatient care, or responsibilities other than direct patient care) had a significant effect upon anticipated number of walk assists,  $F(2, 250) = 4.52$ ,  $p = .009$ . Specifically, Tukey's LSD follow up tests revealed that nurses who provided inpatient care anticipated providing 0.33 fewer walk assists than nurses who provided outpatient care ( $p = .104$ ), and 0.41 fewer walk assists than nurses with other types of job responsibilities ( $p = .011$ ). Primary job responsibility was not included in the regression models of walk assistance in order to limit the total number of variables in the model, and because it was not central to any of the hypotheses of the study. A robustness check indicated that when primary job responsibility was added to the final model, the only change in the pattern of results was that attitudes toward patient gained relative strength as a predictor, moving ahead of nurse age and demands of walk assistance. However, immediate availability of a second staff member remained the only significant predictor of all the variables originally considered. Anticipated walk assistance was not impacted by nurses'

race, work site, medical specialty area, frequency of post-surgical care provision, overall workload, or education/certification.

## **Discussion**

Results of this study revealed that nurses held positive attitudes toward patients of both normal and obese weights. Attitudes toward obese patients, although positive over all, were significantly more negative than attitudes toward normal-weight patients. This was particularly true for concerns related to hygiene and patient motivation. Despite differences in attitudes, nurses viewing obese patients did not differ in their care decisions about time spent with patient, patient-centered communication, or amount of walk assistance. Nurses perceived that providing walk assistance to obese patients would be more physically demanding, a higher injury risk, and more likely to require additional assistance from a second staff member compared to normal weight patients. These perceived demands did not influence nurses' attitudes toward the patient, but greater perceived demands were associated with fewer anticipated walk assists. Patient weight itself did not influence walk assistance, neither alone nor through the mediators of perceived demands or attitudes toward patient. Regardless of weight condition, the strongest predictor of walk assistance was the likelihood that another staff member would be immediately available to provide additional help if needed.

There were individual differences in participants' use of the term "overweight," "obese," or "extremely obese" to describe the patient in the obese-photograph condition. In fact, choice of term differed significantly based upon the particular patient. Previous researchers have expressed uncertainty about what participants consider "normal weight" to be, particularly related to middle-aged models (Young & Powell, 1985). Validity checks in the

current study confirmed that although the extent of obesity was perceived differently between the different patient models, this difference did not influence any of the study outcomes.

The impact and validity of the measurements were maximized through the use of high-resolution, color photographs with a realistic weight alteration, along with detailed clinical vignettes specific to nursing practice. This was an improvement upon previous studies that manipulated patient weight by simply listing the patient's height and weight (Hebl & Xu, 2001), using black-and-white pencil sketches (Peternelj-Taylor, 1988), or using altered photographs of female patients only, the perceived realism of which were not confirmed (Young & Powell, 1985). In the current study, validity checks confirmed that participants felt that both the photograph and vignettes were realistic and applicable. Through the use of models of both sexes, the study was also able to reveal that patient sex did not have a significant main effect on attitudes toward the patient, nor did it interact with patient weight to influence attitudes.

In previous research, older nurses were found to have significantly more positive attitudes toward obese patients compared to younger nurses (Bagley et al., 1989; Culbertson & Smolen, 1999; Swift et al., 2012; Young & Powell, 1985). In the current study, older nurses were found to have more positive attitudes toward their patients in general, but nurse age did not significantly interact with patient weight to influence attitudes. This new finding provides much more specific information about the true relationship between the variables. In most previous research, nurses were simply asked directly about their attitudes toward obese patients, and little or no formal comparison was made to nurses' attitudes toward patients of normal weight. Given the results of the current research, it seems likely that the more-positive attitudes toward obese patients previously observed among older nurses were simply due to the fact

that older nurses had more-positive attitudes toward all patients in general. However, the current study showed that older nurse age did not actually buffer against the negative relationship between patient weight and attitudes toward the patient.

Nurse weight was another potential influence upon attitudes toward obese patients identified in previous research, but these previous findings were split between those that found heavier nurses to have more positive attitudes toward obese patients (Brown et al., 2007; Garcia, 2012; Gujral et al., 2011; Hoppe & Ogden, 1997; Young & Powell, 1985; Swift et al., 2012) and those that found nurse weight to be unrelated to their attitudes toward obese patients (Garcia 2016; Poon & Tarrant, 2009; Zuzelo & Seminara, 2006). In the current study, nurses with higher Body Mass Index were found to have more positive attitudes toward patients in general, but the relationship did not reach the level of significance. This absence of a significant main was not explained by an interaction effect, as nurse BMI did not significantly buffer the negative impact of patient weight on attitudes toward the patient. This finding suggests that although higher nurse weight may or may not have a small positive influence on attitudes toward patients in general, nurse weight is not likely to be a key factor when attempting to understand the relationship between patient weight and nurses' attitudes.

The finding that nurses' own personal attitudes about a patient's weight did not influence his or her clinical decisions is encouraging, as it suggests that nurses are providing consistent and equitable patient care. In fact, nurses' overall attitudes toward the patient (above and beyond the effects of the patient's weight) also did not impact most of their clinical decisions. It is possible that nurses' diligent use of evidenced-based care guidelines offers one explanation for these findings; such guidelines could act as a protective factor against

unconscious bias in care decisions. A number of participants' comments at the end of the survey provided support for this possibility. Several explained their response regarding number of visits by noting that their hospital has a policy or initiative for every patient to receive a visit each hour. Another participant explained that she based her estimation of the patient's fall risk on the Morse Fall Scale, a brief assessment that is widely used in acute care settings (Morse, Morse, & Tylko, 1989). Strong emphasis is placed on evidence-based care in nursing practice, specifically because it helps promote best practices and minimizes subjectivity in the provision of care.

The results of this study provide additional evidence suggesting that the relationship between attitudes and care decisions may differ between nurses and other types of providers. In contrast to findings among physicians in previous research (Hebl & Xu, 2001), nurses in the current study did not demonstrate a significant influence of patient weight upon time spent with the patient, the patient's perceived likelihood to benefit from care, empathy/ desire to help, frustration/ impatience, enjoyment/ fulfillment in caring for the patient, and the use of strict advice during communication. Previous research about the impact of providers' implicit biases upon their care decisions have also pointed to potential differences between nurses and other providers. Although the effects of implicit bias have not been studied in terms of weight, Haider et al. (2015) found that nurses' implicit racial biases did not translate to differences in clinical assessments or decisions. Studies with other types of providers, however, have revealed mixed findings about the effects of implicit racial biases on the provision of care. Biases were related to care among primary care physicians (Blair et al., 2013) and a mixed sample of 90%

physicians/ 10% nurse practitioners (Cooper et al., 2012), but not among pediatricians (Sabin, Rivara, & Greenwald, 2008) or medical students (Haider et al., 2011).

There are several potential reasons for the observed differences between nurses and other providers. As already discussed, perhaps nurses' emphasis on evidence-based care, or some other aspect of nurses' particular training, is protective against attitudes having an impact upon care decisions. Nurses might also have a different type of relationship with their patients compared to other providers, due to spending more time with each patient, providing more hands-on care, or having more frequent communication with the patient across his or her visit. The differing proportions of males and females within each health care profession may also have an impact. Across the United States, professionally active nurses are 88% female and 7% male (5% unspecified), while physicians are 34% female and 66% male (Kaiser Family Foundation, 2017a, 2017b). This difference could be especially important given that the current study found that female participants had more positive attitudes toward the patient than male participants. A consistent gender difference could explain why no influence of attitudes upon outcomes was observed among nurses (a primarily female population), despite this influence having been observed among physicians (a primarily male population).

This study was successful in advancing what was known about nurses' attitudes toward obese patients from past quantitative and qualitative research. Previous use of self-report scales revealed a variety of negative attitudes held toward obese patients (Allison et al., 1991; Culbertson & Smolen, 1999; Garner & Nichol, 1998; Maroney & Golub, 1992; Poon & Tarrant, 2009). The current study built upon these findings through an experimental manipulation that compared patients of both normal and obese weight, revealing that obese weight was indeed

significantly associated with more negative attitudes. Previous qualitative research emphasized the fact that nurses also held positive feelings such as empathy and concern for obese patients, while still noting that these feelings conflicted with frustration due to increased nursing demands a perceived lack of patient effort (Brown et al., 2007; Garcia, 2012; Mercer & Tessier, 2001; Petrich, 2000; Zuzelo & Seminara, 2006). The current study built upon these findings by quantifying the attitudes held toward obese patients, and by confirming that these attitudes were more positive than negative among patients of both weights. Furthermore, the perceived demands of nursing care were considered separately from affective reactions to the patient and judgments of his or her character (i.e., “attitudes”). This revealed that perceived increases in care demands were not in fact significantly associated with more negative attitudes. Thus, these two concepts are distinct, and should both be accounted for in future research.

The scale regarding the perceived demands of walking assistance quantified, for the first time, challenges associated specifically with the ambulation of obese patients (i.e., greater time, physical exertion, injury risk, and need for additional assistance). These demands were identified in previous qualitative research (Garcia, 2012; Zuzelo & Seminara, 2006), and the current study built upon that knowledge by demonstrating the reliability of these items when considered as a scale. Furthermore, this experimental design tested and confirmed that greater patient weight was indeed significantly associated with greater perceived demands upon the nurse related to patient ambulation.

The study revealed that although higher patient weight increased these perceived demands, and these demands decreased the anticipated number of walk assists, patient weight itself did not affect walk assistance directly or through this mediation pathway. Thus, practical



considerations such as time, effort, and resources were significant in guiding nurses' decisions in this area, whereas patient weight itself was not. The importance of practical considerations was further underscored by the finding that the single strongest predictor of walk assistance was the expected availability of a second staff member. Surprisingly, this effect was independent of patient weight. Even though obese patients were perceived as more likely to require additional staff assistance, the interaction between patient weight and staff availability was not significant. Instead, staff availability was a key predictor across all patients.

These findings suggest that the increased demands of caring for obese patients noted in previous research may be less important for care outcomes than systemic factors that determine the total demands upon nurses. Additional support for this idea is provided by the finding that nurses with higher job satisfaction held more positive attitudes toward the patient. Much previous literature has pointed out that high workloads are linked to occupational stress among nurses (Endacott, 2012; Happell, Dwyer, Reid-Searl, Burke, Caperchione, & Gaskin, 2013). The fact that additional staff availability played a key role in maximizing walk assistance in the current study lends additional support to the possibility that staffing policies may be a key area of focus for the promotion of quality care. Future research should give additional consideration to institution-level factors that impact staffing, nurses' job satisfaction, and resource availability. In particular, the availability of specialized, size-appropriate equipment should be addressed in situations for which it is relevant, as nurses have noted a frequent lack of such equipment in previous research (Garcia, 2012; Zuzelo & Seminara, 2006).

One limitation of this study is that, due to the absence of previously existing materials, there are no established norms or standardized scales to which the clinical vignettes and

decisions developed for this study can be compared. This study is one of very few that have used clinical vignettes to examine the influence of patient factors upon nurses' decisions, and the first known to the researcher that evaluated decisions related to patient movement. These newly developed descriptions and questions represent an important preliminary step in the development of practical, standardized materials to assess nurses' clinical decisions and the influences upon them. Participants' comments revealed that measurements of pain management decisions, in particular, would benefit from continued development. Most previous research regarding pain perceptions has been aimed at pediatric patients (LaFond et al., 2015a, 2015b) or has utilized computer-generated virtual vignettes (Hirsh et al., 2009; Hirsh et al., 2010), but a written vignette aimed at adult patients is lacking. Future research should continue to refine and expand measurement techniques, and develop new materials to cover a variety of clinical situations. The continued collection of nuanced details about a broad range of issues that might influence specific nursing decisions would serve as an important tool to expand what is known about nurses' clinical decisions and the influences upon them.

Another limitation of the study is a lack of certainty as to the extent which the anticipated behaviors participants reported would correspond to their actual behaviors. It would be fruitful for future studies to incorporate direct observation of nursing decisions and behaviors in a naturalistic setting. This approach could confirm that nurses' reported decisions correlate with their actual practice, help provide a greater degree of sensitivity in measurements that may be difficult to estimate with accuracy (e.g., time spent with each patient), and shed light upon shift-specific issues which may influence outcomes (e.g., patient caseload or shift staffing). This would also remove the need to use facial photographs to

represent the patient, which participants could have noticed as an unusual addition to medical information, as photographs are not typically part of patient charts. Despite the potential limitation of facial photographs, they were used in this study because it was anticipated they would be a more impactful manipulation than simply listing the patient's weight, a less obvious manipulation than using a full-body photograph, and because photographs or drawings have been a common method of manipulating weight or assessing implicit bias in previous research (DeJong, 1980; Haider et al., 2011; Harvard Project Implicit, 2011; Nolan, Murphy, & Barnes-Holmes, 2013; Peternelj-Taylor, 1988; Young & Powell, 1985).

The use of in-person, simulated encounters with trained patient models is another method in which the patient's weight would be obvious without the need to include a photograph, and this method could also potentially increase the impact of the patient's weight upon participants' reactions. Further, this would allow for the type of back and forth exchanges that nurses indicated they would need to make a fully informed decision (especially in regard to pain management decisions). Another direction of future research that could be fruitful is to tailor vignettes and clinical decisions more specifically to nurses working in a certain area or department. This could help ensure consistency of training and relevant experience across the sample, and create a well-defined subpopulation of nurses to whom results could be confidently generalized.

Taken together, the study's findings paint a very positive picture of nurses' attitudes, quality of care provision, and the nature of the factors by which nurses are influenced. Nurses held positive attitudes toward all of their patients. Although these attitudes were significantly more positive for patients of normal weight, this difference did not lead to any significant

differences in care decisions, despite such differences having been noted among other types of providers. Nurses' diligent use of evidence-based care practices and their more extended and hands-on relationship with the patient are suggested as possible reasons for the minimal influence of nurses' personal attitudes upon their provision of care. Rather than personal attitudes, nurses' care decisions were more strongly influenced by factors such as their job satisfaction, the practical demands of providing walk assistance, and the immediate availability of a second staff member if additional assistance should be needed. These findings are encouraging because they suggest that modifiable institution-level factors such as high staffing, availability of needed equipment and resources, and fostering nurses' job satisfaction are likely to be effective means to improve the quality of care for all patients.

This study provided new knowledge about the relationship between patient weight and provider attitudes, and took the important step of examining how these factors related to clinical care decisions among the previously under-studied population of practicing nurses. Written clinical vignettes and a brief, reliable scale of the perceived demands of walk assistance were developed, and the use of realistic, high-resolution photographs and validity checks increased confidence in the conclusions. This new knowledge and these new resources are valuable additions to the body of research about the influences of patient weight upon health care providers' attitudes and clinical decisions.

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## Appendix:

### UW-Milwaukee Clinical Decision Survey for Nurses

Please plan 10-15 minutes to complete the survey in one sitting, if possible. If you must leave your computer and cannot secure it while you are gone (e.g., by locking the screen with password protection), simply exit the survey. The responses you already entered will be recorded, but you will not be able to return to the rest of your survey later.

\*Please do not take the survey more than once, even if you did not finish the entire survey.

\*Please do not discuss this survey with anyone. This is extremely important to keep results from being biased for others.

If you are unsure about your answer to a question, please make the best response you can with the information available. If you are uncomfortable answering any of the questions, you are free to skip those questions.

Thank you very much for participating!

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The following sections describe hypothetical encounters with this patient, each followed by questions.

*[Patient photograph]*

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*[Patient photograph repeated]*

You start a morning 8-hour shift and learn of this new patient, 24 hours post-op laparoscopic emergency appendectomy. *He/she* is 31 years old. The previous shift nurse reports the patient had an uneventful night. *He/she* has an IV in *his/her* right hand, but there are no current orders to run fluid. You enter the room for your first assessment.

Please estimate how long you would spend on this initial assessment visit (minutes): \_\_\_\_\_

---

*[Patient photograph repeated]*

The patient is slightly pale, but appears comfortably positioned. Vitals are within normal ranges. *He/she* reports pain level 6 out of 10. There are orders for acetaminophen or narcotic pain medication every 4-6 hours prn. *His/her* last dose was narcotic, administered 4 hours ago.

How urgent is it to administer the next dose of pain medication?

Not at all urgent			Moderately urgent			Extremely urgent
1	2	3	4	5	6	7

How likely would you choose the acetaminophen?

Not at all likely			Moderately likely			Extremely likely
1	2	3	4	5	6	7

How likely would you choose the narcotic?

Not at all likely			Moderately likely			Extremely likely
1	2	3	4	5	6	7

How important is it to help the patient keep pain to a minimum during recovery?

Not at all important			Moderately important			Extremely important
1	2	3	4	5	6	7

---

*[Patient photograph repeated]*

The doctor indicated the patient should ambulate several times today using a walker, so you ask the patient to take a short walk. *He/she* replies, "I don't want to get up, it really hurts!" You explain that even though it may be painful, movement after surgery helps prevent complications. *He/she* says, "I'm feeling really tired right now. Can we do it later?" You decide to tell the patient you will come back in a few minutes.

How important is walking to the patient's recovery?

Not at all important			Moderately important			Extremely important
1	2	3	4	5	6	7

How much trust do you have in the patient's report of *his/her* symptoms?

No trust at all			Moderate trust			Extreme trust
1	2	3	4	5	6	7

---

*[Patient photograph repeated]*

The patient is watching TV when you return about 20 minutes later. *He/she* frowns when you enter the room. You ask, "Ready for the walk?" *He/she* responds, "It still really hurts! Shouldn't I be resting after my surgery?" You start explaining the doctor's walking instructions again. *He/she* looks very disappointed.

How important is it to discuss the medical reasons for your instructions with the patient?

Not important at all			Moderately important			Extremely important
1	2	3	4	5	6	7

How important is it to hear all of the patient's concerns before making your care decisions?

Not important at all			Moderately important			Extremely important
1	2	3	4	5	6	7

---

*[Patient photograph repeated]*

After some discussion, the patient agrees to walk. You bring the walker over, and explain you will help *him/her* get up and grip the walker, walk across the room and back, and return to bed.

How time-consuming would it be to assist the patient with this walk?

Not at all time-consuming			Moderately time-consuming			Extremely time-consuming
1	2	3	4	5	6	7

How physically demanding would it be for you to provide assistance the patient?

Not at all demanding			Moderately demanding			Extremely demanding
1	2	3	4	5	6	7

How much risk of injury would you be in while providing assistance to the patient?

Not risk at all			Moderate risk			Extreme risk
1	2	3	4	5	6	7

How necessary would it be to have a CNA or another nurse with you to provide the assistance?

Not at all necessary			Moderately necessary			Extremely necessary
1	2	3	4	5	6	7

If you wanted additional assistance, how likely is it that a CNA or another nurse would be immediately available to help?

Not at all likely			Moderately likely			Extremely likely
1	2	3	4	5	6	7

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*[Patient photograph repeated]*

When you help the patient sit up, *he/she* reports dizziness, but it passes quickly. *He/she* maintains good balance during the walk, but does lean heavily on the walker. After returning to bed, *he/she* immediately lays back and closes *his/her* eyes.

How comfortable would you be with the patient getting up and using the walker without you in the room?

Not at all comfortable

Moderately comfortable

Extremely comfortable

1                      2                      3                      4                      5                      6                      7

---

*[Patient photograph repeated]*

Once the patient is settled, you explain that the more *he/she* moves around, the better it is for recovery. You advise *him/her* to sit up in bed or walk every 1-2 hours. The patient nods, but doesn't say anything. Before leaving, you place the call button and walker within easy reach.

How closely would you monitor the patient's amount of movement over your shift?

Not closely at all

Moderately closely

Extremely closely

1                      2                      3                      4                      5                      6                      7

Please estimate the number of times you would personally assist the patient with a walk during this 8-hour shift (if any): \_\_\_\_\_

How much is it the patient's responsibility to make sure to get enough movement?

Not at all the  
patient's responsibility

Moderately the  
patient's responsibility

Extremely the  
patient's responsibility

1                      2                      3                      4                      5                      6                      7

How much is it your responsibility to make sure the patient gets enough movement?

Not at all  
my responsibility

Moderately  
my responsibility

Extremely  
my responsibility

1                      2                      3                      4                      5                      6                      7

How likely is the patient to follow your movement instructions if you did not check in again?

Not at all likely

Moderately likely

Extremely likely

1                      2                      3                      4                      5                      6                      7

---

*[Patient photograph repeated]*

Please estimate how many times you would visit the patient during your 8-hour shift (after your initial assessment): \_\_\_\_\_

Please estimate the average length of each visit (after your initial assessment) in minutes:

\_\_\_\_\_

Please indicate how much you agree with each statement. Please try your best to “go with your gut” and answer honestly.

Do not agree at all				Moderately agree				Extremely agree
1	2	3	4	5	6	7		

It would be fulfilling to care for the patient

It is easy to take the patient’s concerns seriously

It would be emotionally draining to care for the patient

If given the choice, I would prefer to care for a different patient instead

It would be stressful to care for the patient

The patient is lazy

The patient is cooperative

The patient is willing to put effort into *his/her* recovery

I feel empathy for the patient

I believe I can make a difference to the patient’s health

I am worried the patient might have poor personal hygiene

The patient cares about *his/her* own health

The patient frustrates me

If given the choice, I would prefer not to touch the patient

---

How realistic were these nursing decisions?

Not at all realistic				Moderately realistic				Extremely realistic
1	2	3	4	5	6	7		

How applicable are these decisions to your nursing practice?

Not at all applicable

Moderately applicable

Extremely applicable

1

2

3

4

5

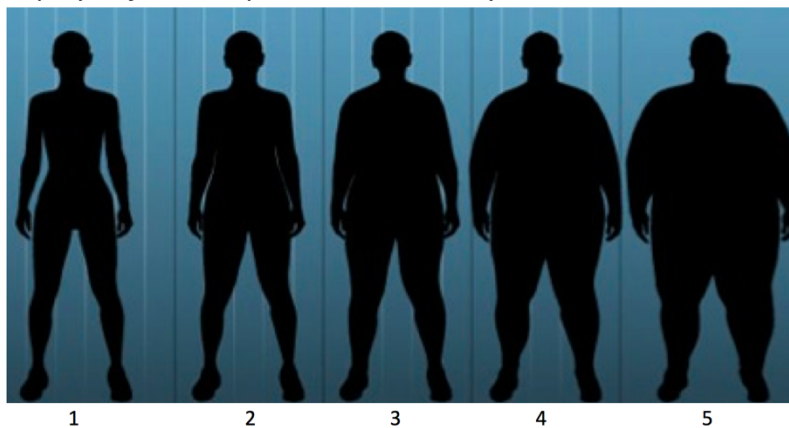
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7

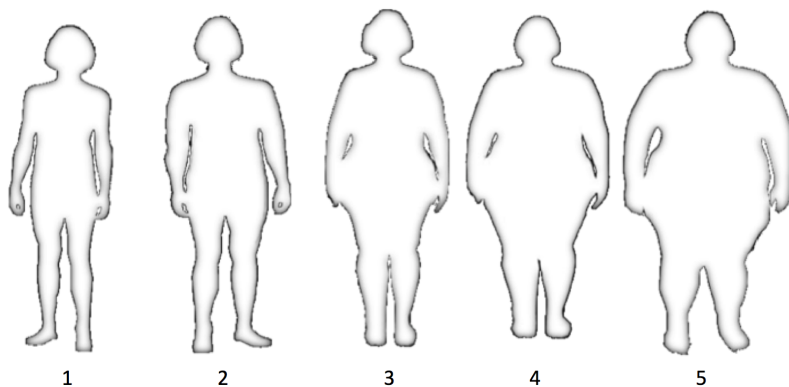
*[Patient photograph repeated]*

If you had to guess, which body type probably best corresponds to the person in the photograph?

*Displayed for male patient models only:*



*Displayed for female patient models only:*



How would you describe the body type you selected?

Extremely Underweight

Underweight

Normal weight

Overweight

Obese

Extremely obese



How realistic is the photograph?

Not at all realistic

Moderately realistic

Extremely realistic

1

2

3

4

5

6

7

---

Which nursing degrees or certifications do you hold? (You may select more than one)

ADN (Associate Degree in Nursing)

LPN (Licensed Practical Nurse)

BSN (Bachelor of Science in Nursing)

RN (Registered Nurse)

MSN (Master of Science in Nursing)

CNS (Clinical Nurse Specialist)

NP (Nurse Practitioner)

DNP (Doctor of Nursing Practice)

Other: \_\_\_\_\_

How many years of nursing experience do you have? \_\_\_\_\_

Which best describes your current position?

Nursing Management

Nurse Practitioner

Ambulatory/ Outpatient Care

Medical-Surgical

Mental Health/ Addictions

Intensive Care

Palliative Care

Rehabilitation

Emergency/ Trauma or Critical Care

Cardiac/ Telemetry

Obstetrics/Gynecology or Pre/Perinatal

Oncology

Pediatrics

Geriatrics

Other: \_\_\_\_\_

How do you spend most of your time in your current position?

Provide direct care for inpatients

Provide direct care for outpatients

Other responsibilities besides direct patient care

How often have you provided direct care to post-surgical patients?

Never			Moderately often			Extremely often
1	2	3	4	5	6	7

How would you describe your workload on an average day?

Not heavy at all			Moderately heavy			Extremely heavy
1	2	3	4	5	6	7

Which best describes your work location?

Small hospital (less than 100 beds)

Medium hospital (100 – 499 beds)

Large hospital (500 beds or more)

Outpatient clinic

Other: \_\_\_\_\_

---

All things considered, how satisfied are you with your life as a whole?

Not at all satisfied			Moderately satisfied			Extremely satisfied
1	2	3	4	5	6	7

How satisfied are you with your job?

Not at all satisfied			Moderately satisfied			Extremely satisfied
1	2	3	4	5	6	7

How satisfied are you with your current body type?

Not at all satisfied			Moderately satisfied			Extremely satisfied
1	2	3	4	5	6	7

---

What is your gender?

Female

Male

Which best describes your race or ethnicity?

Caucasian

Hispanic or Latino

African American

American Indian or Alaska Native

Asian or Pacific Islander

Mixed race or ethnicity

Another race or ethnicity: \_\_\_\_\_

What is your age? \_\_\_\_\_

What is your height?

Feet: \_\_\_\_\_

Inches: \_\_\_\_\_

What is your weight? (lbs): \_\_\_\_\_

Before you began the survey, did a co-worker or anyone else tell you about the weight-related questions on the survey, or the person in the photograph?

No

Yes

Any comments about the survey? (Optional) \_\_\_\_\_

## CURRICULUM VITAE

**Heidi M. Pfeiffer, Ph.D.**

### EDUCATION

#### **University of Wisconsin-Milwaukee**

Doctor of Philosophy in Psychology, May 2017

Dissertation Title: *Nurses' reactions to patient weight: Effects on clinical decisions*

Master of Science in Psychology, May 2014

Thesis Title: *Predictors of perceived belonging among U.S. military men and women*

Major: Health and Social Psychology

Minors: Quantitative Methods, Psychopathology

GPA: 4.0/4.0

#### **Marquette University**

Bachelor of Arts in Psychology, May 2006

Minor: Biology

GPA: 4.0/4.0

### TEACHING AND MENTORING EXPERIENCE

#### **University of Wisconsin-Milwaukee**

Associate Lecturer, (Online) Psychological Statistics  
Spring 2017

Teaching Assistant to Dr. Marcellus Merritt, Research Methods in Psychology  
Spring 2017

Teaching Assistant to Dr. Pam Schaefer, Experimental Social Psychology  
Fall 2012, Fall 2014, Spring 2015, Fall 2015, Spring 2016

Teaching Assistant to Dr. Anthony Greene, Research Methods in Psychology (Online)  
Fall 2016

Teaching Assistant to Dr. Karyn Frick, (Online) Introduction to Psychology  
Course was part of a national *U-Pace* instruction research study (Dr. Diane Reddy)  
Fall 2011, Spring 2012

## **Alverno College**

Instructor, Probability and Statistics for Nurses  
Fall 2014, Spring 2015, Fall 2015

## **Marquette University**

Tutor, Student-Athlete Academic Center  
Fall 2004, Spring 2005, Fall 2005, Spring 2006

Tutor, Student Educational Services Office  
Spring 2005, Fall 2005, Spring 2006

## **Hope House of Milwaukee**

Volunteer/Tutor, Elementary and Middle School After-School Program  
Jan 2006 – July 2007

## **AWARDS AND HONORS**

- National University Technology Network (NUTN) Research and Scholarship Award  
2016
- University of Wisconsin-Milwaukee Psychology Summer Graduate Research Fellowship  
2016
- University of Wisconsin-Milwaukee Distinguished Dissertator Fellowship Award  
2014 - 2015
- University of Wisconsin-Milwaukee Distinguished Graduate Student Fellowship Award  
2013 - 2014
- National University Technology Network (NUTN) Research and Scholarship Award  
2013
- University of Wisconsin-Milwaukee Chancellor's Graduate Student Award  
2011 - 2013
- Gold Medal Award (Valedictorian), Marquette University College of Arts & Sciences  
2006

- Marquette University Ralph H. Metcalfe Senior Scholar Athlete of the Year  
2006
- Association of Marquette University Women Scholarship  
2005
- Marquette University Ignatius and Community Service Scholarships  
2004 - 2006

### RESEARCH AND SCHOLARSHIP AWARDS FOR PUBLICATIONS

National University Technology Network (NUTN) Research and Scholarship Award, 2016, for:

Fleming, R., Stoiber, L. C., **Pfeiffer, H. M.**, Kienzler, S. E., Fleming, R. R., Pedrick, L. E., Barth D. J., & Reddy, D. M. (2016). Using U-Pace instruction to improve the academic performance of economically disadvantaged undergraduates. *Journal of Computer Assisted Learning*. DOI: 10.1111/jcal.12133 <http://onlinelibrary.wiley.com/doi/10.1111/jcal.12133/abstract>

National University Technology Network (NUTN) Research and Scholarship Award, 2013, for:

Reddy, D. M., Fleming, R., Pedrick, L. E., Jirovec, D. L., **Pfeiffer, H. M.**, Ports, K. A., Barnack-Tavlaris, J. L., Helion, A. M., & Swain, R. A. (2013). U-Pace instruction: Improving student success by integrating content mastery and amplified assistance. *Journal of Asynchronous Learning Networks*, 17 (1), 147 – 154.

### ADDITIONAL PUBLICATIONS

Cornette, M. M., Schlotthauer, A. E., Berlin, J., Clark, D. C., French, L. M., Miller, M. L., & **Pfeiffer, H. M.** (2014). The public health approach to reducing suicide: Opportunities for curriculum development in psychiatry residency training programs. *The Journal of the American Association of Directors of Psychiatric Residency Training and the Association for Academic Psychiatry*, 38(5), 575-584.

Reddy, D. M., Fleming, R., Jirovec, D. L., Pedrick, L. E., **Pfeiffer, H. M.**, & Stoiber, L. C. (2013). Increasing student success in higher education through U-Pace instruction. *Higher Learning Commission: A Collection of Papers on Self-Study and Institutional Improvement*, 23-26.

## NATIONAL AWARDS HONORING *U-PACE* INSTRUCTION

WCET Outstanding Work (WOW) Award, 2014

Bestowed by the Western Interstate Commission for Higher Education (WICHE)  
Cooperative for Educational Technologies

Desire2EXCEL Impact Award, 2013

Bestowed by Desire2Learn (D2L)

Distance Education Innovation Award, 2012

Bestowed by the National University Technology Network (NUTN)

## PRESENTATIONS

### UW-Milwaukee Psychology Department Service

**Pfeiffer, H. M.**, & Larson, C. L. (2016, April). *Graduate student research and the dissertation process: Dissertation proposal summary for "Nurses' automatic reactions to patient weight: Effects on clinical decision-making."* University of Wisconsin-Milwaukee Visit by the Franklin High School Psychology Club, Milwaukee, WI.

Kebbekus, M., **Pfeiffer, H. M.**, Rotondo, E., Yousuf, H., & Mosack, K. E. (2016, March). *Advice on the graduate school application process.* Invited panel member for the Spring Meeting of Psi Chi: University of Wisconsin-Milwaukee Chapter, Milwaukee, WI.

### The Science of Teaching and Learning

Fleming, R., Reddy, D. M., Stoiber, L. C., Kienzler, S., **Pfeiffer, H. M.**, & Fleming, R. R. (2015, May). *U-Pace instruction produced greater learning than conventional instruction in a randomized controlled trial.* Association for Psychological Science Annual Convention, New York, NY.

Kienzler, S., **Pfeiffer, H. M.**, Stoiber, L. C., Fleming, R., & Reddy, D. M. (2015, April). *Value of proactive e-mail support in facilitating student academic success.* Office of Professional and Instructional Development Conference, Green Lake, WI.

Stoiber, L. C., Kienzler, S., **Pfeiffer, H. M.**, Di Paolo, M. R., Fleming, R., & Reddy, D. M. (2015, April). *Measuring actual change to inform course/ institutional assessment.* Office of Professional and Instructional Development Conference, Green Lake, WI.

- Reddy, D. M., Pedrick, L. E., Fleming, R., Kienzler, S., Stoiber, L. C., Barth, D. J., **Pfeiffer, H. M.**, & Fleming, R. R. (2014, November). *U-Pace instruction: Paving the way to college success*. WCET (WICHE Cooperative for Educational Technologies) Annual Meeting, Portland, OR.
- Kienzler, S., Stoiber, L. C., Fleming, R. R., Fleming, R., **Pfeiffer, H. M.**, & Reddy, D. M. (2014, November). *Proactive email responding to learning analytics*. WCET (WICHE Cooperative for Educational Technologies) Annual Meeting, Portland, OR.
- Reddy, D. M., Fleming, R., Stoiber, L. C., **Pfeiffer, H. M.**, Pedrick, L. E., Barth, D. J. (2014, July). *Improving student outcomes in higher education with U-Pace instruction*. 21<sup>st</sup> International Conference on Learning, New York, NY.
- Fleming, R., Reddy, D. M., Fleming, R. R., **Pfeiffer, H. M.**, & Stobier, L. C. (2014, March). *Lessons learned from implementing U-Pace online instruction with high school and college students*. 25<sup>th</sup> Annual International Society for Information Technology and Teacher Education Conference, Jacksonville, FL.
- Reddy, D. M., Stoiber, L. C., **Pfeiffer, H. M.**, Fleming, R., Pedrick, L. E., & Barth, D. J. (2013, October). *Understanding the impact of online instruction: Strategies and lessons from the U-Pace instructional approach*. Poster presentation for the EDUCAUSE Annual Conference, Anaheim, CA.
- Pfeiffer, H. M.**, Jirovec, D. L., Reddy, D. M., Fleming, R., & Pedrick, L. E. (2013, July-August). *Closing the achievement gap by applying the science of learning*. Poster presentation for the American Psychological Association Conference, Honolulu, HI.
- Pfeiffer, H. M.**, Jirovec, D. L., Reddy, D. M., Fleming, R., Pedrick, L. E., & Barth, D. J. (2013, July-August). *Replication of U-Pace student outcomes across universities and student populations*. Poster presentation for the American Psychological Association Conference, Honolulu, HI.
- Stearns, S. S., Jirovec, D. L., **Pfeiffer, H. M.**, Fleming, R., & Reddy, D. M. (2013, July-August). *Learning how to learn: U-Pace instruction facilitates study skill development*. Poster presentation for the American Psychological Association Conference, Honolulu, HI.
- Jirovec, D. L., **Pfeiffer, H. M.**, Reddy, D. M., Fleming, R., Pedrick, L. E., & Barth, D. J. (2013, April). *Applying learning science to increase student success*. Poster presentation for the Office of Professional and Instructional Development Conference, Madison, WI.
- Reddy, D. M., Fleming, R., Jirovec, D. L., Pedrick, L. E., & **Pfeiffer, H. M.** *Increasing student success in higher education through U-Pace instruction*. (2013, April). Presentation for the Higher Learning Commission Conference, Chicago, IL.



Fleming, R., Reddy, D. M., Pedrick, L.E., Barth, D. J., Jirovec, D. L., **Pfeiffer, H. M.**, & Stearns, S.S. (2013, February). *U-Pace: A new model for online instruction in higher education*. Poster presentation for the 20th Georgia Conference on College and University Teaching, Center for Excellence in Teaching and Learning, Kennesaw, GA.

Reddy, D. M., Fleming, R., **Pfeiffer, H. M.**, & Jirovec, D. L. (2012, October). *U-Pace training workshop*. Atlanta, GA.

Reddy, D. M., Fleming, R., **Pfeiffer, H. M.**, Jirovec, D. L., Pedrick, L. E., & Barth, D. J. (2012, October). *U-Pace instruction improves student success by integrating content mastery and amplified assistance*. Poster presentation for the Society for Teaching Psychology Best Practices Conference, Atlanta, GA.

**Pfeiffer, H. M.**, LaFleur, R. M., Jirovec, D. L., Lee, H. J., Frick, K. M., Swain, R. A., Pedrick, L. E., Fleming, R., & Reddy, D. M. (2012, May). *Effect of U-Pace instruction on student success*. Poster presentation for the Association of Psychological Science Convention, Chicago, IL.

**Pfeiffer, H. M.** & Penlesky, B. R. (2010, October). *Visual mnemonics and other study techniques*. Invited speaker for the University of Wisconsin – La Crosse Upward Bound Prescription for Change Saturday Event, La Crosse, WI.

## **Health Psychology**

Kienzler, S., Reddy, D., & **Pfeiffer, H. M.** (2017, March). *Social referents influence women's hormonal contraceptive decisions?* Invited Ed Talk presented for the Planned Parenthood of Wisconsin's 2017 Safe Healthy Strong Conference, Milwaukee, WI.

Kienzler, S. E., Reddy, D. M., & **Pfeiffer, H. M.** (2017, March). *Social influences and medical mistrust in the hormonal contraceptive decision-making process*. Association for Women in Psychology Conference, Milwaukee, WI.

Kienzler, S. E., Reddy, D. M., & **Pfeiffer, H. M.** (2016, May). *Social referents' influence on hormonal contraceptive use*. Association of Psychological Science Annual Convention, Chicago, IL.

## **Mental Health among Military Veterans**

**Pfeiffer, H. M.**, Reddy, D. M., & Kienzler, S. (2017, March). *Perceived belonging among male and female U.S. military service members*. Association for Women in Psychology Conference, Milwaukee, WI.

Cornette, M. M. & **Pfeiffer, H. M.** (2010, October). *The burden of female veteran suicide in Wisconsin*. Workshop presentation for the Wisconsin Women's Veteran Conference, Ft. McCoy, WI.

Cornette, M. M. & **Pfeiffer, H. M.** (2010, October). Presentation for the VISN 12 Suicide Completion Aggregate Review Meeting, Milwaukee, WI.

Cornette, M. M. & **Pfeiffer, H. M.** (2010, September). Presentation for the VISN 12 Mental Health Advisory Board Meeting, Milwaukee, WI.

Bryan, C., Cukrowicz, K., Cornette, M. M., Joiner, T. E., Miller, M. L., & **Pfeiffer, H. M.** (2010, April). *Military suicide and the interpersonal-psychological theory of suicide: Preliminary evidence*. Panel presentation for the American Association of Suicidology Conference, Orlando, FL.

Cornette, M. M., Schlotthauer, A. E., Kopp, B. C., Hale, L., Hargarten, S. W. Miller, M. L., & **Pfeiffer, H. M.** (2010, April). *Characteristics of military veteran and non-veteran suicides in Wisconsin*. Paper presented at the American Association of Suicidology Conference, Orlando, FL.

## RESEARCH EXPERIENCE

### University of Wisconsin-Milwaukee

Project Assistantship with Dr. Diane Reddy, *U-Pace* Instruction Lab  
Spring 2013

Research Assistant to Dr. Diane Reddy, *U-Pace* Instruction Lab  
May 2012 - January 2013, June 2013 - August 2014

### Clement J. Zablocki VA Medical Center

Research Co-Investigator with Dr. Bertrand Berger, Mental Health Department  
September 2014 - Present

Research Technician with Dr. Michelle Cornette, Mental Health Department  
September 2009 - September 2014

**Marquette University Center for Psychological Services**

Research Assistant to Dr. Stephen Saunders  
August 2007 – May 2008

**Marquette University Psychology Department**

Research Assistant to Dr. Debra Oswald and Lucie Holmgreen  
May - July 2009

*Updated May, 2017*